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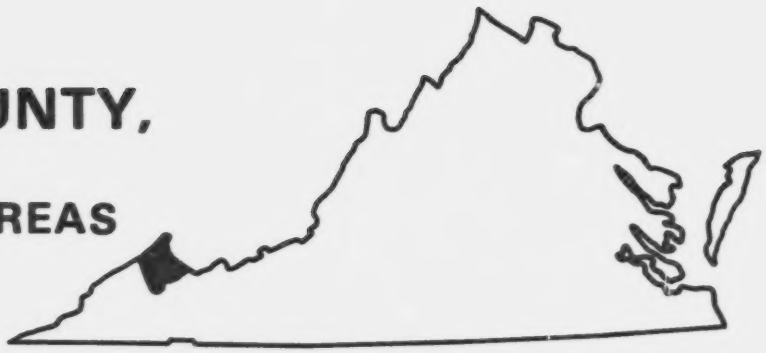
FLOOD INSURANCE STUDY

BUCHANAN COUNTY, VIRGINIA
UNINCORPORATED AREAS



SEPTEMBER 16, 1988

ORIGINAL

Federal Emergency Management Agency

COMMUNITY NUMBER - 510024

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance study purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

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FLOOD INSURANCE STUDY
UNINCORPORATED AREAS OF BUCHANAN COUNTY, VIRGINIA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the unincorporated areas of Buchanan County, Virginia, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by Resource Applications, Inc., and Dewberry & Davis for the Federal Emergency Management Agency (FEMA), under Contract No. EMW-C-0096. This work was completed in May 1982. This work was updated as a result of comments received from the community.

1.3 Coordination

On July 7, 1982, streams requiring detailed study were identified at an initial Consultation and Coordination Officer's (CCO) meeting attended by representatives of FEMA, Buchanan County, Resource Applications, Inc. (the study contractor), and the State Water Control Board. Upon initiation of the study, a public announcement was published on October 14, 1982, in the Virginia Mountaineer to notify all interested parties to submit any relevant facts and technical data concerning local flood hazards. During the course of the study, contact was maintained with community officials, the State Water Control Board, and the U. S. Army Corps of Engineers (COE) for general community information. On February 25, 1986, the results of the study were reviewed at a final CCO meeting held with representatives of FEMA and the county.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the unincorporated areas of Buchanan County, Virginia. The Town of Grundy is not included in this study. The area of study is shown on the Vicinity Map (Figure 1).

The following streams were studied by detailed methods: Levisa Fork from approximately 0.09 mile upstream of the downstream county boundary to a point approximately 13 miles upstream of the Town of Grundy; Knox Creek from a point approximately 0.25 mile downstream of the Norfolk and Western Railway crossing to a point approximately 2.2 miles upstream of State Route 652; Russell Fork from a point approximately 1.14 miles downstream of State Route 80 to a point approximately 2.55 miles upstream; Dismal Creek from a point approximately 1.8 miles downstream of State Route 628 to a point approximately 2.1 miles upstream; Big Prater Creek from its confluence with Levisa Fork to the confluence of Trace Fork Branch; Trace Fork Branch from its confluence with Big Prather Creek to a point approximately 1.5 miles upstream; and Tug Fork from the downstream state boundary to a point approximately 5.3 miles upstream. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction through May 1987.

The following streams were studied by approximate methods: Guess Branch; Left Fork; Race Fork; Lester Fork; Home Creek; Straight Fork; Right Fork; Lynn Camp Creek; Looney Creek; Grassy Creek; Bull Creek; Deel Fork; Big Lick Branch; Russell Prater Creek; War Fork; Little Prater Creek; Dry Fork; Ball Creek; Rocklick Creek; Garden Creek; Vance Fork; Abners Fork; Slate Creek; Pawpaw Creek; Pounding Mill Creek; Blackey Fork; Little Garden Creek; and the remaining portions of Knox Creek, Dismal Creek, Trace Fork Branch, Levisa Creek, Big Prater Creek, and Tug Fork within the county boundary. Although Big Lick Branch was studied by approximate methods, negligible flood hazards were found to exist and no flood boundaries were mapped. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and Buchanan County.

2.2 Community Description

Buchanan County is located in the southwestern portion of Virginia, approximately 110 miles west of the City of Roanoke and 30 miles north of the City of Bristol. It is bordered by Dickenson County, Virginia, to the southwest, Russell County, Virginia, to the south, Tazewell County, Virginia, to the southeast, McDowell County, West Virginia, to the northeast, Mingo County, West Virginia, to the

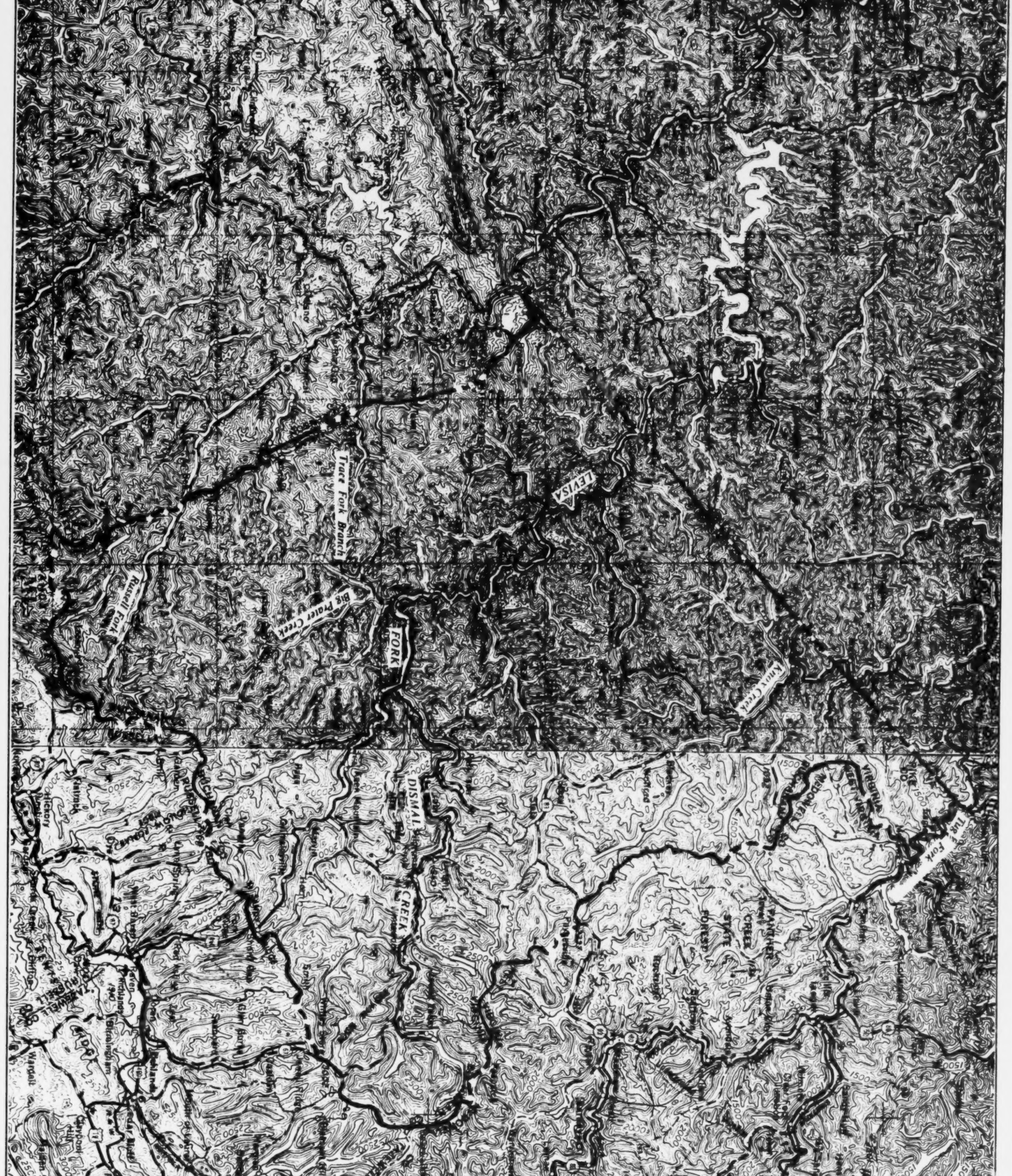


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

APPROXIMATE SCALE

4 0 4 8 12 MILES

VICINITY MAP

north, and Pike County, Kentucky, to the northwest. The total land area contained within Buchanan County is approximately 508 square miles. According to the U. S. Bureau of the Census, the population of the county increased from 32,071 in 1970 to 37,989 in 1980 (Reference 1).

Buchanan County lies in the Kanawha area of the Appalachian Plateau, one of the richest coal mining areas of the United States. The economy of the county is heavily dependent on the coal mining industry.

The topography of the area is steep, the result of dissection of the plateau by erosion. Local relief varies from 1,000 to 2,500 feet. Valley bottoms are narrow, with corresponding narrow floodplains.

Due to the topography of the county, roads and settlement patterns generally follow the streams, with rail lines on one side of the valley and roads on the other. Only a few roads cross the ridges, from one valley to another. As a rule, even these follow a stream valley for much of their length.

Levisa Fork, which flows from southeast to northwest through the county, is the primary watercourse. Like Russell Fork and Knox Creek, it is a tributary of Tug Fork. Almost the entire county is drained by these streams.

The primary use of land in Buchanan County is coal mining, with minor farms in small cultivatable areas. Approximately 85 percent of the land is forested.

The average annual precipitation is between 45 and 50 inches. Due to the high relief, there are large local variations in rainfall during storms.

2.3 Principal Flood Problems

Most flooding on the major streams within the county occurs in the spring. On the smaller streams, flooding can occur throughout the year as a result of intense local rainfall.

Major floods occurred in the county in 1929, 1946, 1948, 1957, 1958, 1963, 1967, 1977, and 1978. The recurrence interval of the April 1977 flood, which is the flood of record, was estimated to be slightly more than 100 years.

The 1977 flood resulted in the loss of three lives and several million dollars. All utilities were disrupted, numerous buildings and mobile home parks were washed away or damaged, and several bridges were destroyed. In addition, silt and debris deposits disrupted traffic and economic activities.

2.4 Flood Protection Measures

There are no dams and reservoirs within the study area large enough to have any effect on storms having appreciable runoff. Along a portion of U. S. Route 460, upstream of Grundy, portions of the Levisa Fork channel have been widened and lined with concrete. Within the Town of Grundy, this channel was cleaned and widened some years ago.

Structural measures presently in use consist of flood doors on a number of low-lying structures in Grundy. These doors are closed in the event of a storm expected to produce flooding on Levisa Fork. The operation of the doors is manual. No other structural measures are presently proposed or planned in the study area.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied in detail affecting the county.

Peak discharges for Levisa Fork, Knox Creek, Russell Fork, Dismal Creek, Big Prater Creek, and Trace Fork Branch were calculated using the Soil Conservation Service (SCS) TR-20 computer program (Reference 2). Rainfall values were determined using procedures in Technical Paper No. 40 (Reference 3). Discharges for Tug Fork were obtained from the Flood Insurance Study for Mingo County, West Virginia (Reference 4).

A summary of drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
LEVISA FORK					
Approximately 0.09 mile (500 feet) upstream of the downstream county boundary	309.1	38,300	54,000	58,273	74,600
Downstream of the Town of Grundy	247.3	32,500	46,100	49,859	64,000
Upstream of the Town of Grundy	200.3	31,800	45,200	48,888	62,800
Downstream of the confluence of Dismal Creek	153.5	24,900	35,100	37,900	48,500
KNOX CREEK					
Downstream of the confluence of Pawpaw Creek	87.9	18,546	26,259	28,343	36,301
Downstream of the confluence of Straight Fork	24.5	8,300	11,675	12,587	16,044
RUSSELL FORK					
At the downstream county boundary	59.6	12,241	17,670	19,150	24,803
DISMAL CREEK					
Downstream of the confluence of Bill Young Branch	55.7	16,326	22,850	24,610	31,282
BIG PRATER CREEK/TRACE FORK BRANCH					
At the confluence with Levisa Fork	36.1	10,643	14,925	16,095	20,480
TUG FORK					
At a point approximately 150 feet upstream of the confluence of Ben Creek	599.85	28,500	43,500	51,000	69,000

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Cross sections for the backwater analysis of Levisa Fork from approximately 2.29 miles downstream of the Town of Grundy to approximately 0.22 mile upstream of the Town of Grundy were field surveyed. The remainder of the cross sections on Levisa Fork and the cross sections for the backwater analyses of the remaining streams studied by detailed methods were obtained from topographic maps (scale 1"=600', contour interval 4 feet) compiled from aerial photographs (Reference 5). Cross sections were located at close intervals immediately upstream and downstream of all structures. Below-water sections were obtained from field measurement. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the Flood Insurance Rate Map (Exhibit 2). Along certain portions of Levisa Fork, a profile base line is shown on the maps to represent channel distances as indicated on the flood profiles and floodway data tables.

Water-surface elevations of floods of the selected recurrence intervals were computed using the COE HEC-2 step-backwater computer program (Reference 6). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Starting water-surface elevations for Levisa Fork, Knox Creek, Russell Fork, Dismal Creek, Big Prater Creek, and Trace Fork Branch were determined by the slope/area method. Starting water-surface elevations for Tug Fork were obtained from the Flood Insurance Study for Mingo County, West Virginia (Reference 4).

Roughness coefficients (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and based on field observations of the streams and floodplain areas. The channel "n" values for Levisa Fork ranged from 0.030 to 0.046, and the overbank "n" values ranged from 0.045 to 0.055. For Knox Creek, the channel "n" value was 0.030, and the overbank "n" value was 0.050. The channel "n" value for Dismal Creek was 0.030, and the overbank "n" value was 0.30. For Tug Fork, the channel "n" values ranged from 0.022 to 0.041, and the overbank "n" values ranged from 0.045 to 0.100. The channel "n" values for the remaining streams studied by detailed methods ranged from 0.025 to 0.030, and the overbank "n" values ranged from 0.075 to 0.080.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps; the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2 percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the county. For the streams studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections on Levisa Fork from approximately 2.29 miles downstream of the Town of Grundy to approximately 0.22 mile upstream of the Town of Grundy, the boundaries were interpolated using topographic maps at a scale of 1:1,200 with a contour interval of 5 feet (Reference 7). Between cross sections on the remaining portions of Levisa Fork and on the remaining streams studied by detailed methods, the boundaries were interpolated using topographic maps at a scale of 1"=600' with a contour interval of 4 feet (Reference 5).

For the streams studied by approximate methods, the boundary of the 100-year flood was delineated using U. S. Geological Survey topographic maps (Reference 8).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 2). The computed floodways are shown on the Flood Insurance Rate Map (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodway widths for Levisa Fork, Russell Fork, and Tug Fork extend beyond the county boundary.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Levisa Fork								
A	500	205	4,373	13.3	866.7	866.7	867.3	0.6
B	1,935	299	6,112	9.5	874.5	874.5	875.1	0.6
C	3,735	286	5,456	10.7	875.9	875.9	876.4	0.5
D	5,790	266	5,077	11.5	878.1	878.1	878.5	0.4
E	7,040	344	7,674	7.6	886.6	886.6	887.0	0.4
F	9,060	315	4,712	12.3	888.0	888.0	888.8	0.8
G	10,000	185	4,615	12.6	889.7	889.7	890.3	0.6
H	11,560	168	3,800	15.2	894.9	894.9	895.7	0.8
I	12,685	304	4,467	12.9	896.6	896.6	897.3	0.7
J	14,035	189	4,214	13.7	899.0	899.0	899.6	0.6
K	15,610	431	6,700	8.4	905.0	905.0	905.7	0.7
L	16,760	261	5,748	9.7	906.9	906.9	907.6	0.7
M	19,010	151	3,380	16.4	910.6	910.6	911.0	0.4
N	20,155	178	4,068	13.6	916.5	916.5	917.2	0.7
O	21,755	190	3,780	14.7	917.5	917.5	918.2	0.7
P	23,317	297	6,668	8.3	925.4	925.4	925.7	0.3
Q	25,250	252	4,007	13.8	925.7	925.7	926.0	0.3
R	27,440	267	5,841	9.5	933.0	933.0	933.0	0.0
S	30,440	213	4,853	11.4	938.6	938.6	938.9	0.3
T	32,280	186	3,292	16.6	941.2	941.2	941.3	0.1
U	32,830	337	5,253	10.4	946.5	946.5	947.2	0.7
V	34,130	255	4,082	13.4	946.8	946.8	947.4	0.6
W	35,540	211	4,252	12.9	953.9	953.9	954.3	0.4
X	37,010	358	3,619	15.1	956.6	956.6	957.1	0.5
Y	39,190	305	5,885	9.2	964.5	964.5	964.5	0.0
Z	40,430	142	3,352	15.6	966.4	966.4	966.7	0.3

[1]Feet above county boundary

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

FLOODWAY DATA

LEVISA FORK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Levisa Fork (continued)								
AA	42,445	217	4,115	12.7	970.4	970.4	970.6	0.2
AB	44,175	314	3,695	13.9	975.4	975.4	976.2	0.8
AC	45,455	286	5,983	8.6	984.8	984.8	984.8	0.0
AD	47,200	322	5,535	9.3	985.8	985.8	985.8	0.0
AE	48,475	180	3,787	13.6	986.3	986.3	986.3	0.0
AF	50,275	317	7,106	7.2	997.4	997.4	997.8	0.4
AG	52,225	200	4,208	12.2	1,000.6	1,000.6	1,001.2	0.6
AH	53,650	423	6,053	8.4	1,005.0	1,005.0	1,005.6	0.6
AI	55,125	388	5,335	9.3	1,006.3	1,006.3	1,006.8	0.5
AJ	56,255	340	6,159	8.1	1,008.7	1,008.7	1,009.0	0.3
AK	57,365	237[2]	3,122	16.0	1,010.8	1,010.8	1,011.8	1.0
AL	62,350	193[2]	4,270	11.7	1,025.8	1,025.8	1,026.6	0.8
AM	63,675	192[2]	4,121	12.1	1,029.3	1,029.3	1,029.8	0.5
AN	64,660	189[2]	3,968	12.6	1,030.8	1,030.8	1,031.4	0.6
AO	65,610	177[2]	3,431	14.5	1,032.5	1,032.5	1,032.8	0.3
AP	66,670	146[2]	2,866	17.4	1,033.9	1,033.9	1,034.3	0.4
AQ	83,875	255	3,374	14.5	1,083.4	1,083.4	1,083.4	0.0
AR	85,335	344	5,872	8.3	1,090.8	1,090.8	1,091.2	0.4
AS	86,940	265	4,618	10.6	1,093.2	1,093.2	1,094.2	1.0
AT	88,245	260	4,205	11.6	1,096.5	1,096.5	1,097.2	0.7
AU	90,400	229	4,534	9.5	1,101.4	1,101.4	1,101.7	0.3
AV	92,070	220	4,571	9.5	1,111.2	1,111.2	1,111.3	0.1
AW	93,470	500	6,934	6.2	1,113.6	1,113.6	1,113.7	0.1
AX	96,970	387	5,300	7.5	1,123.1	1,123.1	1,123.1	0.0
AY	99,215	185	3,271	12.1	1,125.1	1,125.1	1,125.1	0.0

[1]Feet above county boundary
[2]This width extends beyond county boundary

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

FLOODWAY DATA

LEVISA FORK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	[1] DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Levisa Fork (continued)								
AZ	101,435	355	6,981	5.7	1,136.0	1,136.0	1,136.5	0.5
BA	102,785	366	7,106	5.4	1,136.9	1,136.9	1,137.3	0.4
BB	104,635	210	4,765	8.1	1,137.8	1,137.8	1,138.2	0.4
BC	107,885	130	2,302	16.7	1,141.5	1,141.5	1,142.1	0.6
BD	109,110	118	1,746	22.1	1,145.0	1,145.0	1,145.0	0.0
BE	110,775	135	5,915	6.5	1,158.6	1,158.6	1,158.7	0.1
BF	113,050	158	3,415	11.2	1,163.7	1,163.7	1,163.8	0.1
BG	114,605	150	2,892	13.2	1,169.7	1,169.7	1,170.4	0.7
BH	116,770	185	3,532	6.5	1,185.1	1,185.1	1,185.2	0.1
BI	118,325	145	1,935	11.9	1,186.0	1,186.0	1,186.0	0.0
BJ	119,950	282	3,679	6.3	1,198.0	1,198.0	1,198.2	0.2
BK	122,800	402	2,262	10.2	1,217.3	1,217.3	1,217.3	0.0
BL	125,100	279	2,823	8.2	1,236.6	1,236.6	1,236.6	0.0
BM	126,350	346	3,377	6.8	1,242.9	1,242.9	1,242.9	0.0
BN	128,125	235	1,824	12.4	1,260.4	1,260.4	1,260.4	0.0
BO	129,900	261	2,917	7.8	1,275.7	1,275.7	1,275.8	0.1
BP	131,400	307	2,156	10.4	1,289.0	1,289.0	1,289.0	0.0
BQ	132,680	417	2,393	9.4	1,300.4	1,300.4	1,300.4	0.0
BR	134,580	300	2,023	11.0	1,314.6	1,314.6	1,314.6	0.0
BS	135,780	163	2,110	7.0	1,320.3	1,320.3	1,320.3	0.0
BT	136,925	239	1,516	9.8	1,329.1	1,329.1	1,329.1	0.0
BU	137,725	305	1,475	9.3	1,333.1	1,333.1	1,333.1	0.0
BV	138,425	258	1,532	9.0	1,336.3	1,336.3	1,336.3	0.0
BW	139,960	345	1,794	7.7	1,352.8	1,352.8	1,352.9	0.1
BX	141,300	508	2,218	6.2	1,367.0	1,367.0	1,367.0	0.0

[1] Feet above county boundary

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

FLOODWAY DATA

LEVISA FORK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE
Levisa Fork (continued)								
BY	142,050[1]	354	1,178	11.7	1,368.5	1,368.5	1,368.7	0.2
BZ	143,360[1]	550	2,017	6.8	1,384.5	1,384.5	1,384.5	0.0
CA	144,960[1]	168	1,101	12.5	1,397.8	1,397.8	1,397.9	0.1
CB	145,810[1]	153	965	14.3	1,402.4	1,402.4	1,402.4	0.0
CC	147,070[1]	86	967	14.3	1,419.9	1,419.9	1,419.9	0.0
CD	147,910[1]	98	1,091	12.6	1,423.3	1,423.3	1,423.3	0.0
CE	149,510[1]	406	2,108	6.5	1,440.3	1,440.3	1,440.3	0.0
CF	151,025[1]	270	1,679	8.2	1,452.5	1,452.5	1,452.5	0.0
CG	152,125[1]	132	1,027	13.4	1,460.6	1,460.6	1,460.6	0.0
CH	153,075[1]	255	1,397	9.9	1,474.8	1,474.8	1,478.8	0.0
Knox Creek								
A	-1,285[2]	136	2,127	13.3	923.8	923.8	923.9	0.1
B	825[2]	318	4,470	6.3	930.5	930.5	931.0	0.5
C	2,885[2]	107	1,445	16.6	933.8	933.8	934.1	0.3
D	6,545[2]	138	2,775	8.7	955.5	955.5	956.3	0.8
E	8,000[2]	190	2,499	9.0	956.9	956.9	957.5	0.6
F	9,295[2]	190	2,701	8.4	959.1	959.1	959.6	0.5
G	14,670[2]	194	2,767	6.5	973.0	973.0	973.5	0.5
H	16,020[2]	330	3,433	5.2	974.1	974.1	974.5	0.4
I	19,565[2]	160	1,195	11.2	980.5	980.5	980.5	0.0
J	22,260[2]	262	3,395	4.1	999.4	999.4	999.9	0.5
K	26,275[2]	183	2,391	5.8	1,025.0	1,025.0	1,025.4	0.4
L	29,990[2]	430	1,749	7.2	1,041.0	1,041.0	1,041.0	0.0
M	32,805[2]	192	1,239	10.5	1,061.7	1,061.7	1,061.8	0.1

[1]Feet above county boundary
[2]Feet from Norfolk and Western Railway

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Knox Creek (continued)								
N	36,055[1]	373	2,952	3.2	1,081.8	1,081.8	1,082.0	0.2
O	37,730[1]	50	578	16.1	1,107.6	1,107.6	1,108.0	0.4
P	42,230[1]	271	1,102	8.0	1,142.0	1,142.0	1,142.0	0.0
Q	47,160[1]	191	974	8.7	1,184.9	1,184.9	1,184.9	0.0
R	49,510[1]	167	953	8.9	1,203.0	1,203.0	1,203.0	0.0
S	52,055[1]	150	890	9.6	1,226.7	1,226.7	1,226.7	0.0
T	54,430[1]	180	957	8.9	1,248.7	1,248.7	1,248.7	0.0
Russell Fork								
A	-6,040[2]	127[3]	2,057	9.3	1,431.6	1,431.6	1,432.6	1.0
B	-4,090[2]	128[3]	2,442	7.6	1,435.2	1,435.2	1,436.1	0.9
C	-2,990[2]	132[3]	2,368	7.9	1,436.0	1,436.0	1,436.8	0.8
D	-1,350[2]	263[3]	3,554	5.2	1,438.4	1,438.4	1,439.4	1.0
E	-480[2]	209[3]	2,556	6.8	1,439.2	1,439.2	1,440.0	0.8
F	580[2]	128	1,522	11.5	1,442.4	1,442.4	1,443.1	0.7
G	2,680[2]	169	2,716	6.4	1,448.9	1,448.9	1,448.9	0.0
H	4,620[2]	165	2,484	7.0	1,452.3	1,452.3	1,452.6	0.3
I	5,730[2]	153	2,776	6.3	1,456.0	1,456.0	1,456.6	0.6
J	9,905[2]	219	1,726	8.3	1,476.1	1,476.1	1,476.1	0.0
K	12,165[2]	192	1,591	9.0	1,489.2	1,489.2	1,489.2	0.0
L	13,470[2]	187	1,555	9.2	1,501.8	1,501.8	1,501.8	0.0

[1]Feet from Norfolk and Western Railway
[2]Feet from State Route 80
[3]This width extends beyond county boundary

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

FLOODWAY DATA

KNOX CREEK-RUSSELL FORK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Dismal Creek								
A	-9,300[1]	442	2,322	10.6	1,560.4	1,560.4	1,561.4	1.0
B	-8,150[1]	208	2,221	11.1	1,565.0	1,565.0	1,565.1	0.1
C	-6,680[1]	578	7,654	3.2	1,576.7	1,576.7	1,576.8	0.1
D	-4,380[1]	346	3,806	6.5	1,585.2	1,585.2	1,585.4	0.2
E	-2,480[1]	138	2,145	10.5	1,595.3	1,595.3	1,595.5	0.2
F	-1,190[1]	183	3,177	6.9	1,598.5	1,598.5	1,599.0	0.5
G	1,135[1]	170	2,168	10.1	1,600.4	1,600.4	1,601.3	0.9
H	2,835[1]	253	1,708	12.7	1,605.1	1,605.1	1,605.1	0.0
I	3,985[1]	210	2,107	10.3	1,610.1	1,610.1	1,610.1	0.0
J	7,050[1]	431	2,220	9.7	1,625.9	1,625.9	1,625.9	0.0
K	8,750[1]	377	3,437	6.3	1,635.9	1,635.9	1,635.9	0.0
L	11,350[1]	150	1,735	12.1	1,647.8	1,647.8	1,647.8	0.6
Big Prater Creek								
A	1,670[2]	232	1,776	9.1	1,128.1	1,128.1	1,128.3	0.2
B	3,365[2]	250	2,155	7.4	1,144.4	1,144.4	1,145.3	0.9
C	4,830[2]	173	1,498	9.1	1,161.7	1,161.7	1,161.8	0.1
Trace Fork Branch								
D	9,120[2]	103	1,034	8.5	1,222.4	1,222.4	1,222.5	0.1
E	11,450[2]	205	1,222	7.8	1,258.1	1,258.1	1,258.4	0.3
F	12,930[2]	70	527	9.2	1,280.9	1,280.9	1,281.7	0.8
G	13,140[2]	83	570	8.5	1,284.1	1,284.1	1,284.6	0.5
H	14,015[2]	119	648	7.5	1,300.3	1,300.3	1,300.5	0.2

[1]Feet from State Route 628
[2]Feet above confluence with Levisa Fork

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

FLOODWAY DATA

DISMAL CREEK-BIG PRATER CREEK-TRACE FORK BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
						(FEET NGVD)		
Tug Fork								
A	1,620	480/10	3,966	12.9	834.0	834.0	834.1	0.1
B	7,290	252/22	2,811	18.1	851.5	851.5	851.5	0.0
C	10,140	304/34	3,457	14.6	861.0	861.0	861.0	0.0
D	13,040	244/4	4,841	10.5	877.2	877.2	877.2	0.0
E	14,440	217/0	3,041	16.8	877.2	877.2	877.2	0.0
F	18,590	294/14	4,076	12.5	888.0	888.0	888.4	0.4
G	19,470	440/3	6,606	7.7	891.7	891.7	892.5	0.8
H	24,140	154/9	2,333	21.9	905.5	905.5	905.5	0.0
I	26,832	273/19	4,392	11.6	917.4	917.4	918.4	1.0

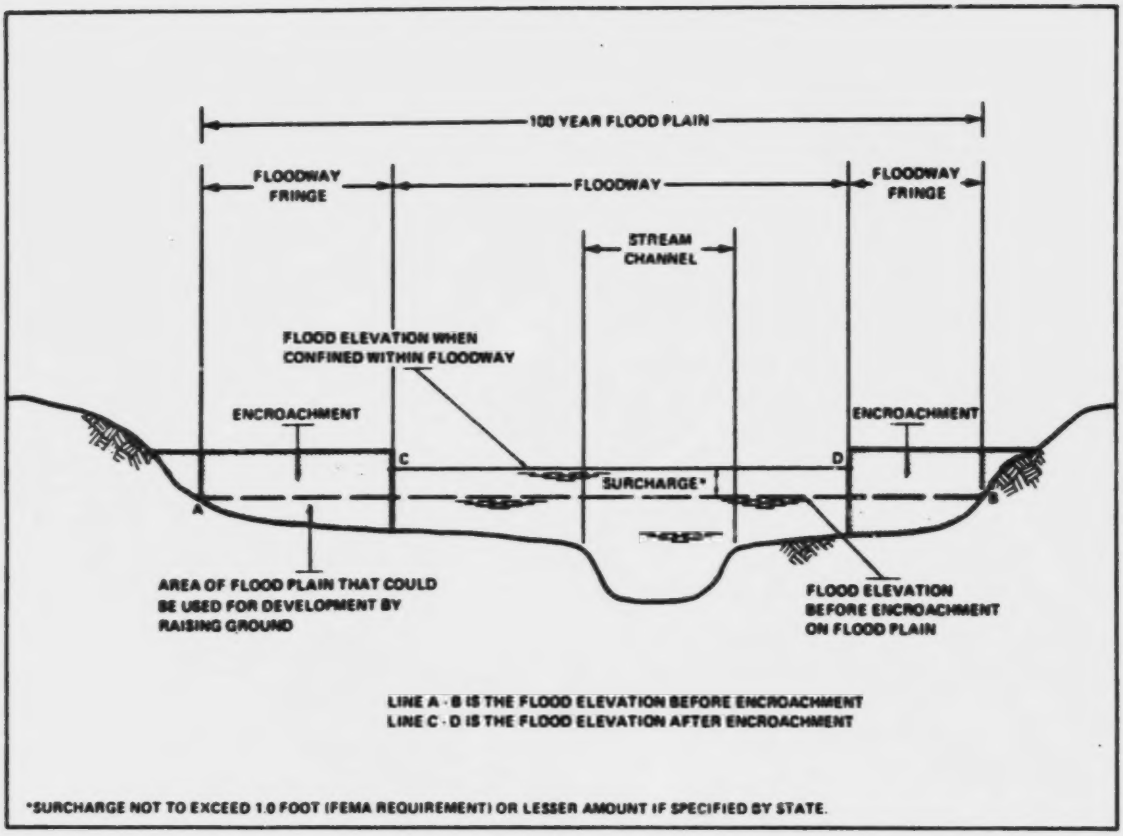
[1]Feet above state boundary
[2]Width/width within county boundary

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

FLOODWAY DATA

TUG FORK


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A - B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C - D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE.

FLOODWAY SCHEMATIC Figure 2

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

7.0 OTHER STUDIES

Flood Insurance Studies for Mingo County, West Virginia, the Tazewell County, Virginia, the Town of Grundy, Virginia, and McDowell County, West Virginia, have been completed (References 4, 9, 10, and 11). The results of this study are in exact agreement with the results of the Mingo County, Tazewell County, and McDowell County studies. The results of this study are not in agreement with the results of the Grundy study. The Grundy study will be revised to match this study.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, Liberty Square Building (Second Floor), 105 South Seventh Street, Philadelphia, Pennsylvania 19106.

9.0 BIBLIOGRAPHY AND REFERENCES

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5. Greenhorne & O'Mara, Topographic Maps compiled from aerial photographs, Scale 1"=600', Contour Interval 4 Feet: Buchanan County, West Virginia, 1983.

6. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Generalized Computer Program, Davis, California, September 1982.

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8. U. S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 40 Feet: Patterson, Virginia-West Virginia, 1964, Photorevised 1977; Harmon, Virginia-Kentucky, 1963, Photorevised 1977; Grundy, Virginia, 1963, Photorevised 1977; Vansant, Virginia, 1963, Photorevised 1977; Prater, Virginia, 1963, Photorevised 1977; Jewell Ridge, Virginia, 1968, Photorevised 1977; Big A Mountain, Virginia, 1958, Photorevised 1975; Keen Mountain, Virginia, 1968, Photorevised 1977; Panther, Virginia, 1963, Photorevised 1977; Hurley, Virginia-Kentucky, 1963, Photorevised 1977.

9. Federal Emergency Management Agency, Flood Insurance Study, Unincorporated Areas of Tazewell County, Virginia, Washington, D. C., September 1, 1983.

10. Federal Emergency Management Agency, Flood Insurance Study, Town of Grundy, Buchanan County, Virginia, Washington, D. C., August 16, 1982.

11. Federal Emergency Management Agency, Flood Insurance Study, Unincorporated Areas of McDowell County, West Virginia, Washington, D. C., September 18, 1986.

EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	FIRM Panel	Elevation (Feet NGVD)	Description of Location
RM 1	78	879.84	Brass disk stamped A316 along west side of U. S. Route 460 approximately 250 feet north of intersection of State Route 610.
RM 2	78	913.48	P. K. nail in center of access road in big tree at northwest corner of U. S. Route 460 and State Route 645 approximately 250 feet west of State Route 645 over Levisa Fork.
RM 3	78	921.23	Square cut in northwest corner of concrete support column for a retaining wall to Black Watch Coal Company at southwest corner of access road over Levisa Fork approximately 75 feet southeast of U. S. Route 460.
RM 4	78	950.94	Square cut in northwest corner of west abutment of access road over Levisa Fork.
RM 5	79	956.63	Brass disk approximately 95 feet east of centerline of State Route 460 approximately 1.04 miles northwest of intersection of State Route 655.
RM 6	79	964.15	Square cut in northeast corner of east abutment of State Route 609 approximately 100 feet southwest of intersection with U. S. Route 460.
RM 7	79	970.59	Brass disk on west side of Norfolk and Western Railway approximately 200 feet southwest of State Route 604 intersection.

EXHIBIT 3 - ELEVATION REFERENCE MARKS - continued

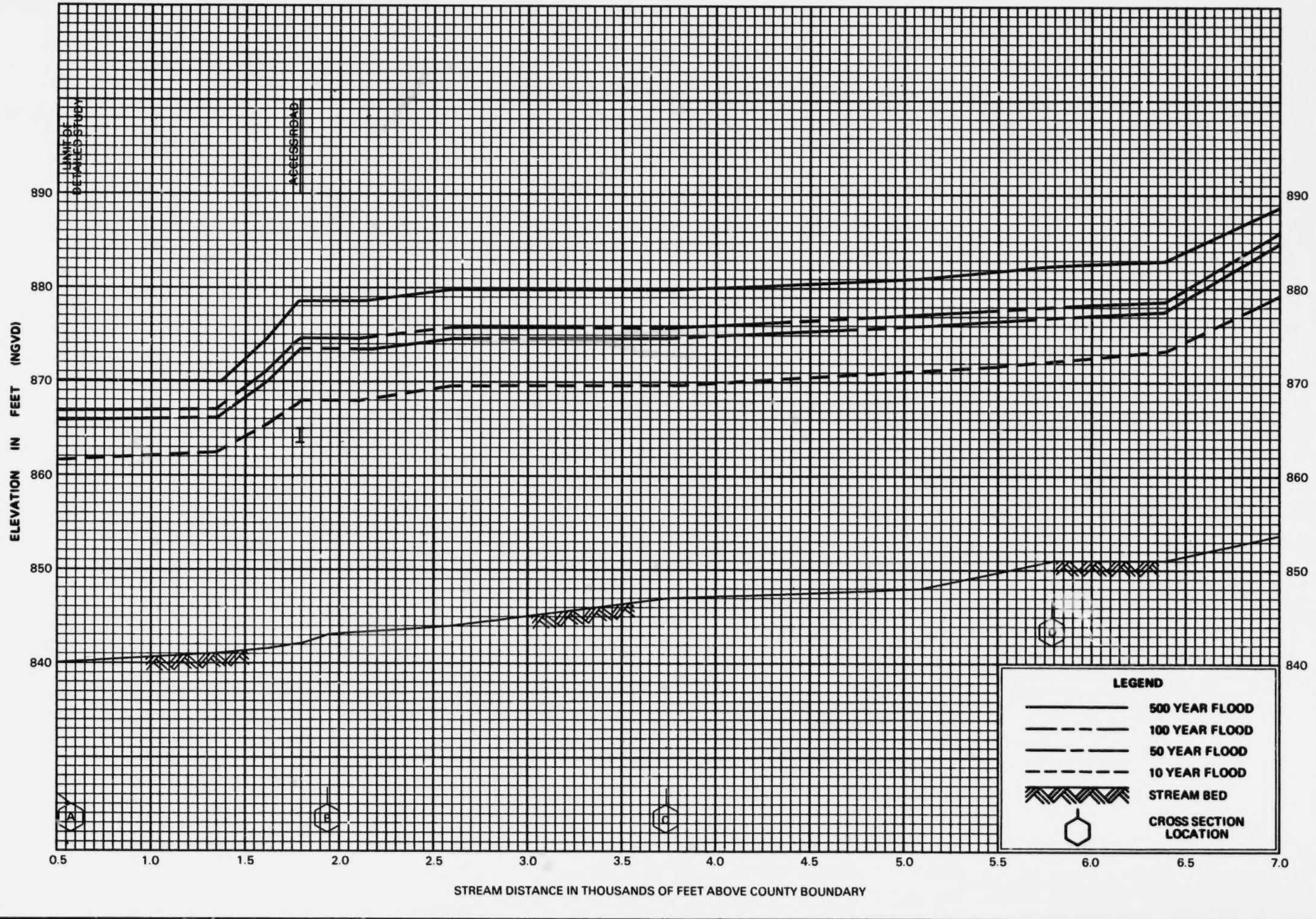
Reference Mark	FIRM Panel	Elevation (Feet NGVD)	Description of Location
RM 8	83	1,008.55	Chiseled cross with punch hole in northwest corner of concrete slab in front of Q and G garage on east side of U. S. Route 460 at northwest corner of building.
RM 9	84	1,153.54	Chiseled cross with punch hole in southwest wing wall of box culvert for Childress Creek approximately 12 feet east of pole number 299-43 along U. S. Route 460.
RM 10	88	1,166.75	Chiseled cross with punch hole in northwest concrete wing wall of north abutment of access road crossing Levisa Fork at entrance to warehouse approximately 80 feet south of centerline of U. S. Route 460 approximately 0.4 mile southeast of Dismal Creek.
RM 11	88	1,202.35	Brass disk on west side of U. S. Route 460 approximately 75 feet south of State Route 638 intersection.
RM 12	88	1,193.73	Chiseled cross with punch hole in northwest corner of concrete headwall of 36 inch CMP approximately 150 feet west of intersection of U. S. Route 460 and State Route 684.
RM 13	88	1,223.89	Brass disk on west side of U. S. Route 460 approximately 0.6 mile south from intersection of State Route 628.

EXHIBIT 3 - ELEVATION REFERENCE MARKS - continued

Reference Mark	FIRM Panel	Elevation (Feet NGVD)	Description of Location
RM 14	88	1,279.33	Chiseled cross with punch hole in southeast corner of concrete slab for gas pump at gas station on west side of U. S. Route 460 approximately 0.47 mile west of intersection of State Route 684.
RM 15	89	1,356.92	Chiseled cross with punch hole in south abutment of access road to Beatrice Mine Company over Levisa Fork.
RM 16	89	1,399.28	USGS disk stamped GBC 1946 reset 1965 in front of post office approximately 325 feet west of U. S. Route 460 approximately 0.5 mile east of Bridge Branch.
RM 17	89	1,418.71	Chiseled cross with punch hole in south abutment wing wall on southwest corner of access road to Garden High School on south side of U. S. Route 460.
RM 18	89	1,471.17	P. K. nail in centerline of U. S. Route 460 approximately 2.7 miles east of State Route 624.
RM 19	107	1,099.76	Chiseled cross with punch hole in east end of concrete retaining wall approximately 2.5 feet west of pole number 298-293 on west side of U. S. Route 460.
RM 20	107	1,124.78	Brass disk stamped 13WSM 1960 in southwest abutment wall on south side of Norfolk and Western Railway approximately 100 feet west of State Route 83 550 feet south of intersection with U. S. Route 460.

EXHIBIT 3 - ELEVATION REFERENCE MARKS - continued

Reference Mark	FIRM Panel	Elevation (Feet NGVD)	Description of Location
RM 21	107	1,138.71	Chiseled cross with punch hole in southwest wing wall of west abutment of access road over Big Prather Creek approximately 170 feet east of centerline of State Route 83.
RM 22	109	1,211.2	Chiseled cross with punch hole in southwest corner of gas pump island on east side of State Route 83 north of Deel's TV repair building.



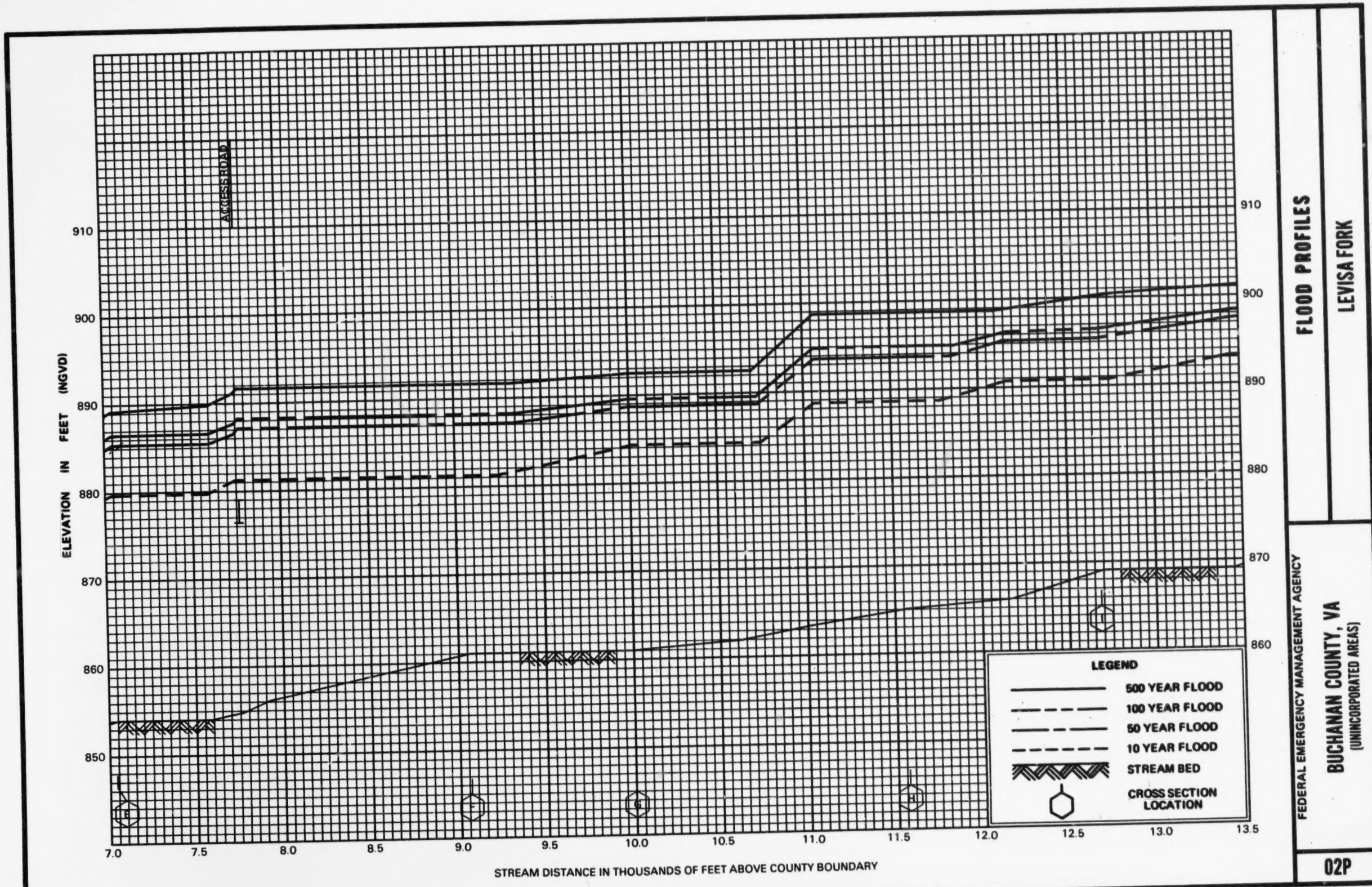
FLOOD PROFILES

LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

01P



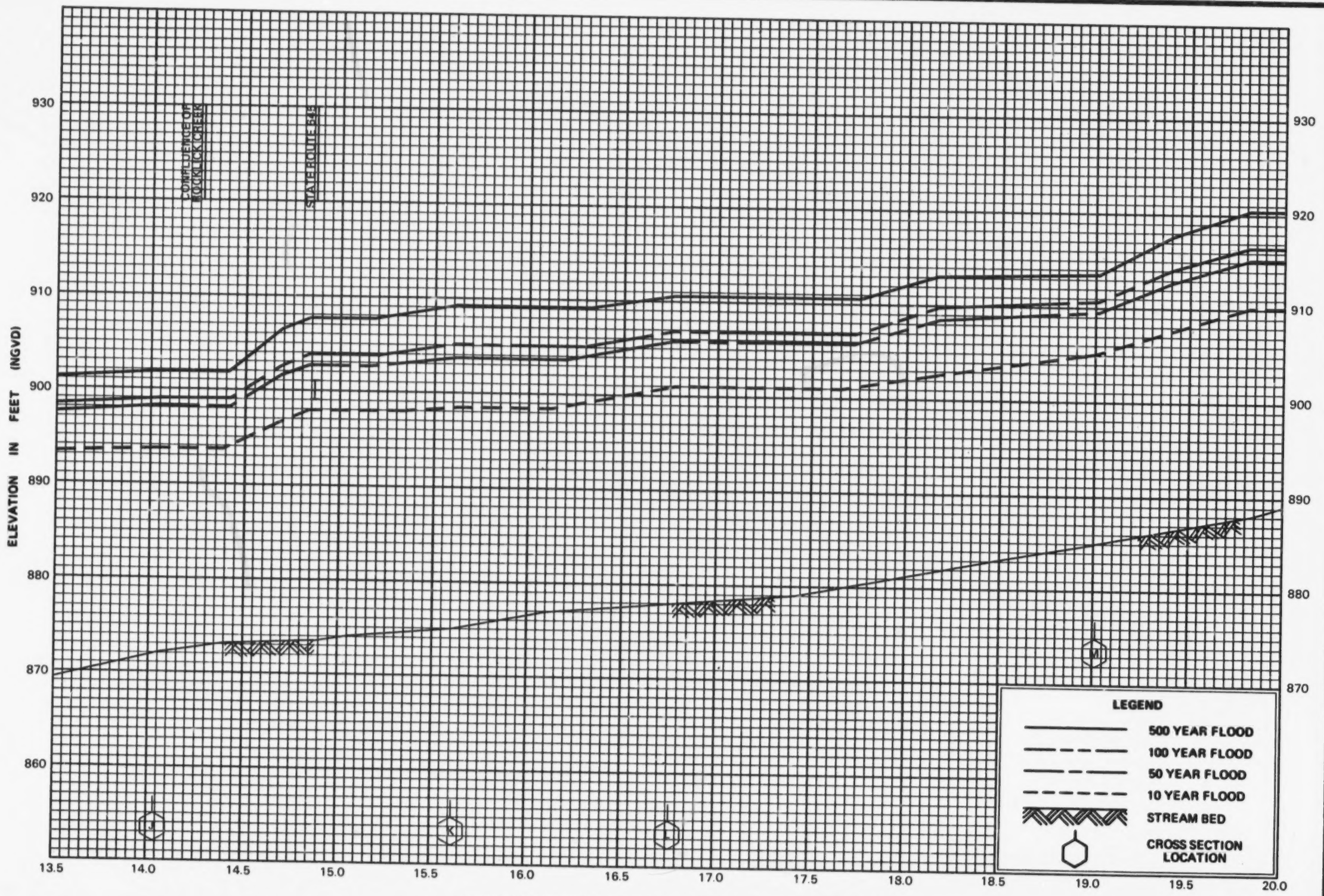
FLOOD PROFILES

LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

02P



FLOOD PROFILES

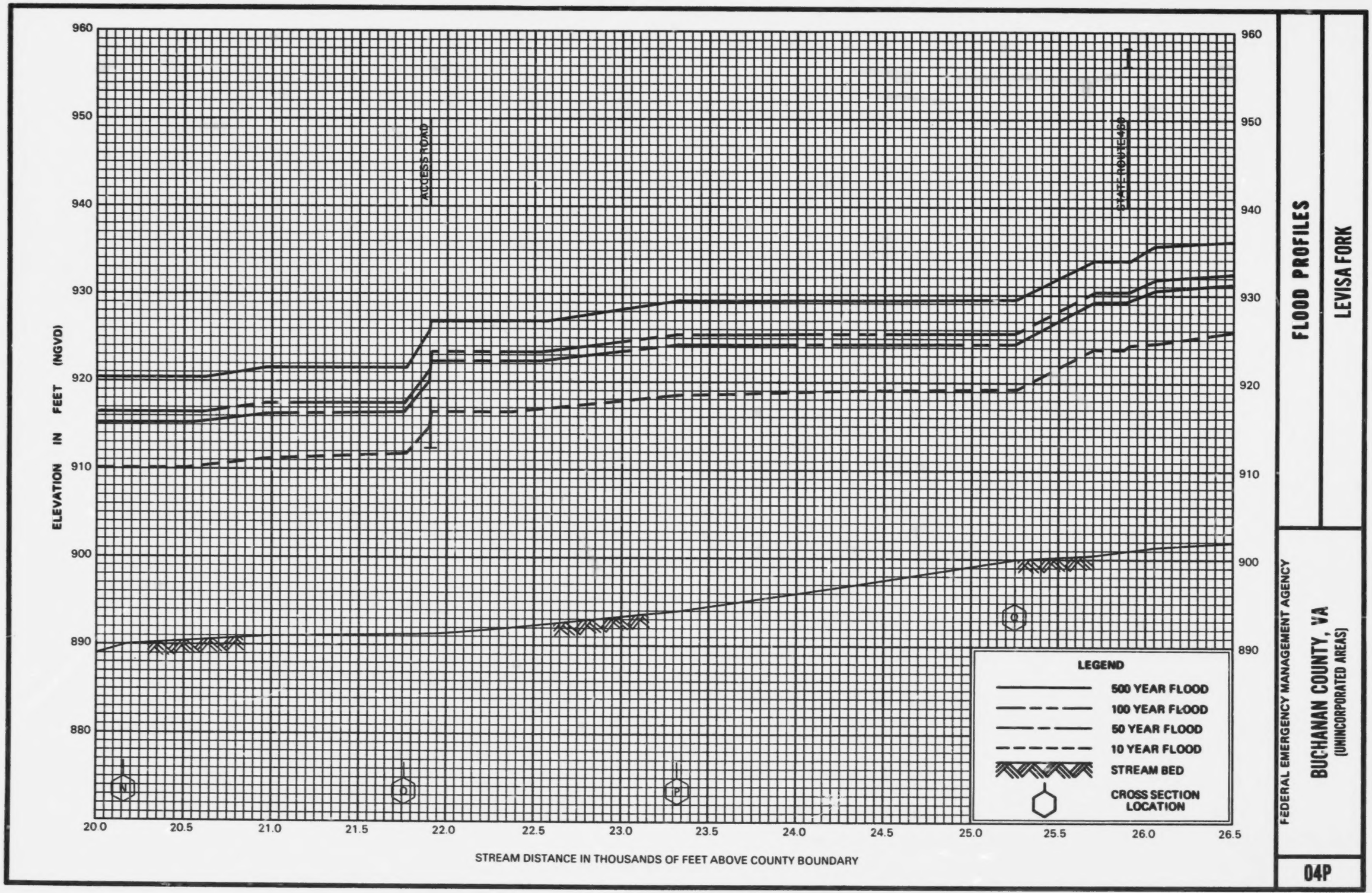
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

03P



FLOOD PROFILES

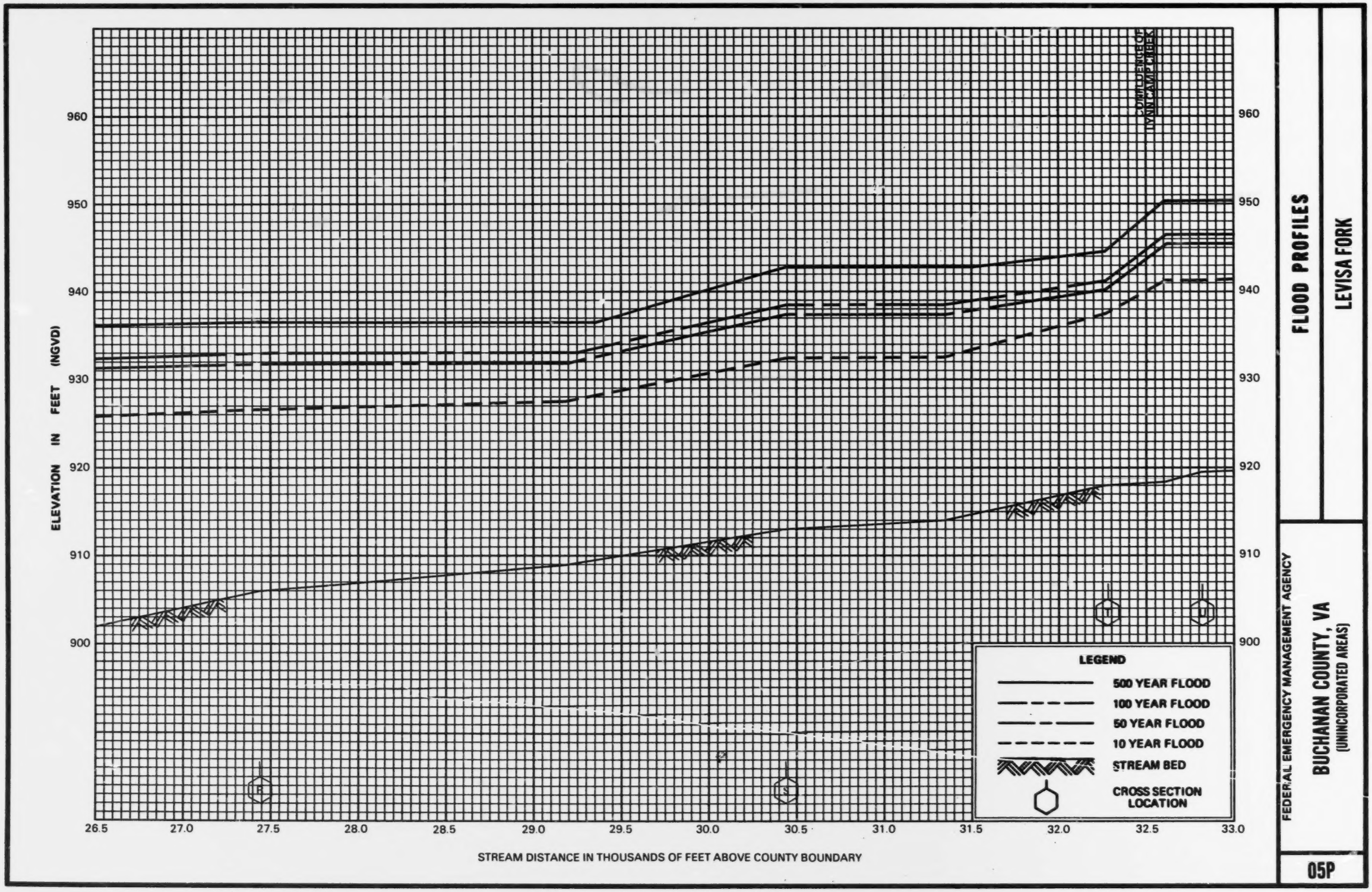
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

04P



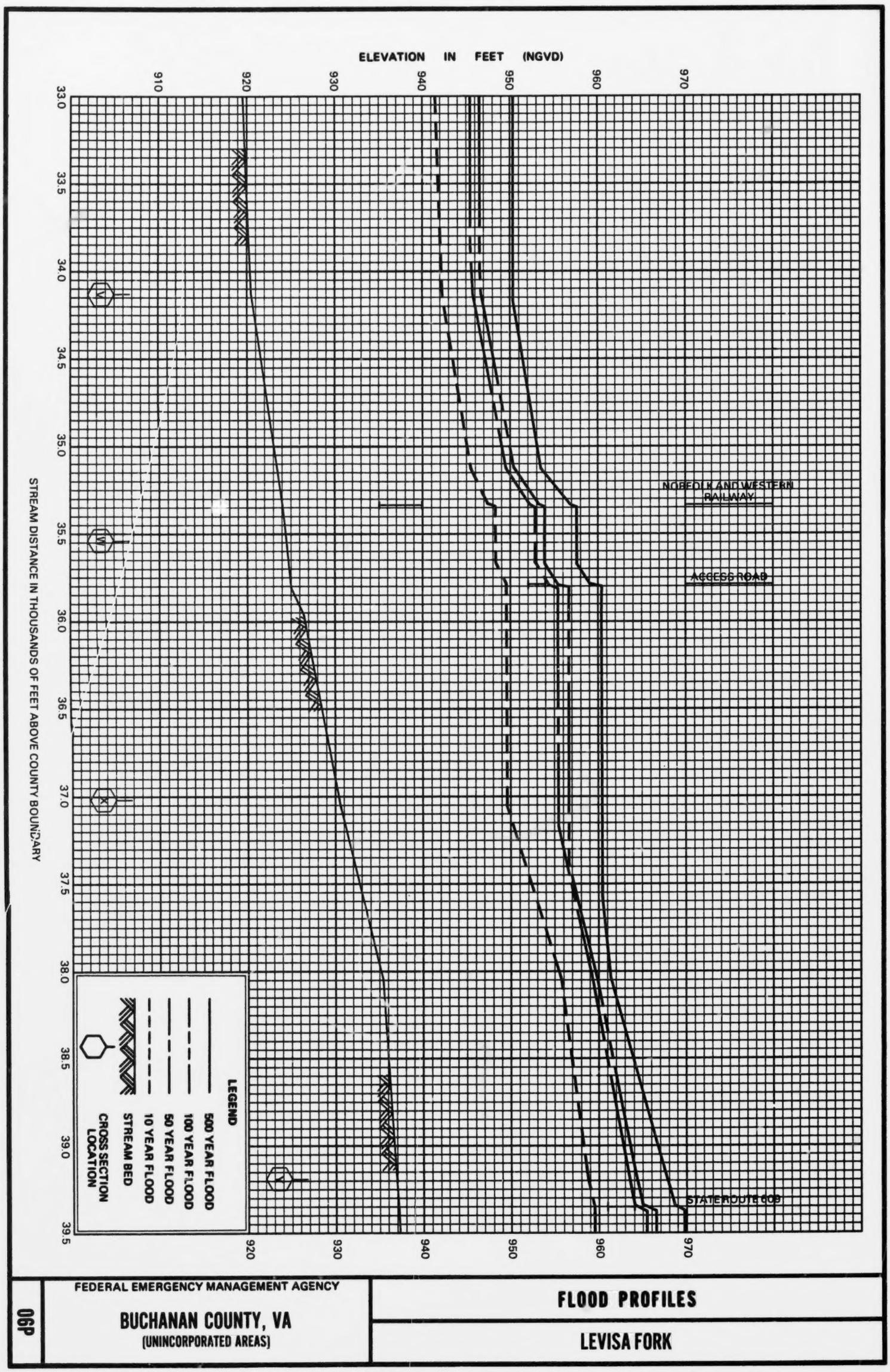
FLOOD PROFILES

LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

05P



FEDERAL EMERGENCY MANAGEMENT AGENCY

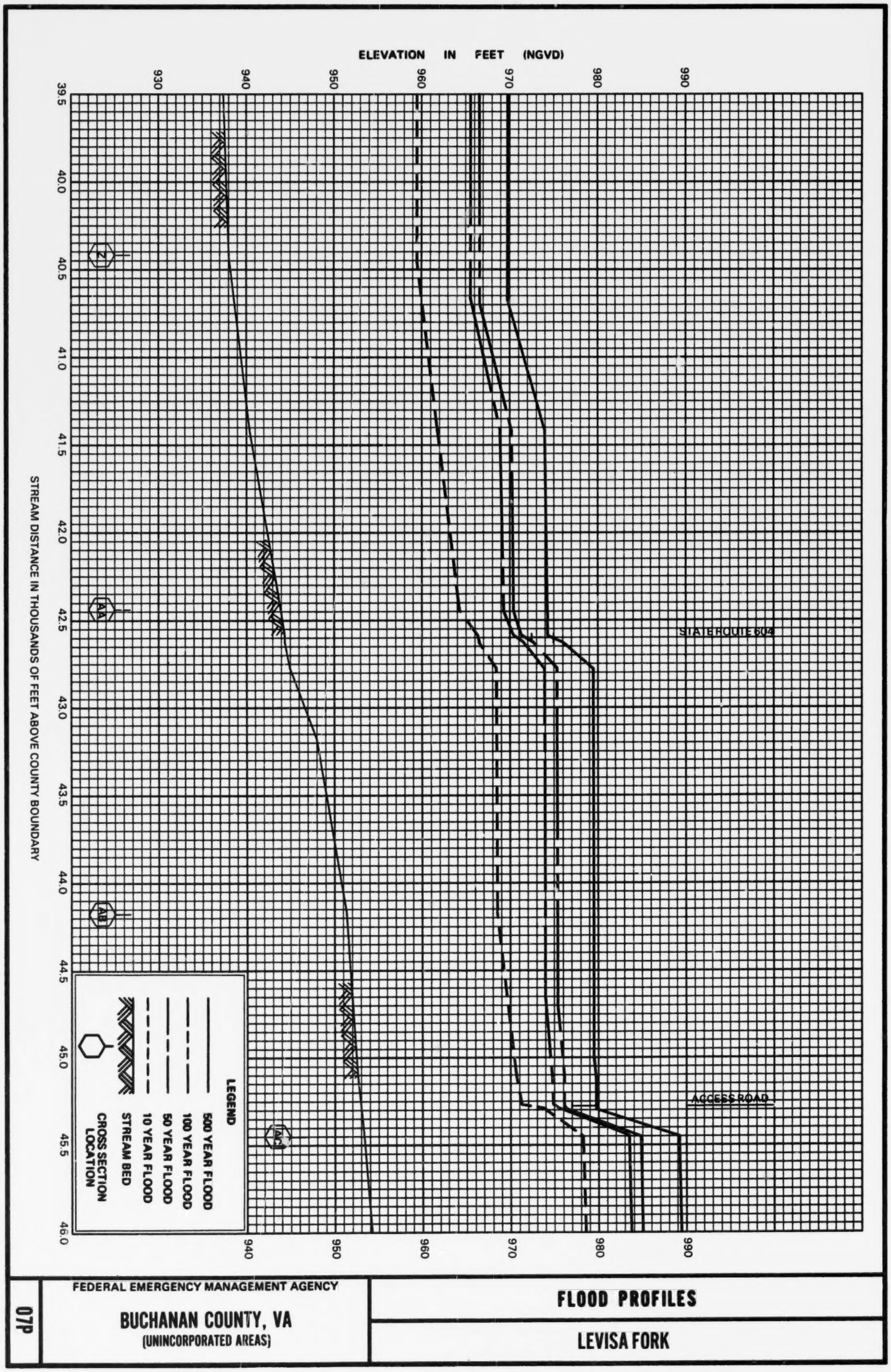
BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

FLOOD PROFILES

LEVISA FORK

06P

30



31

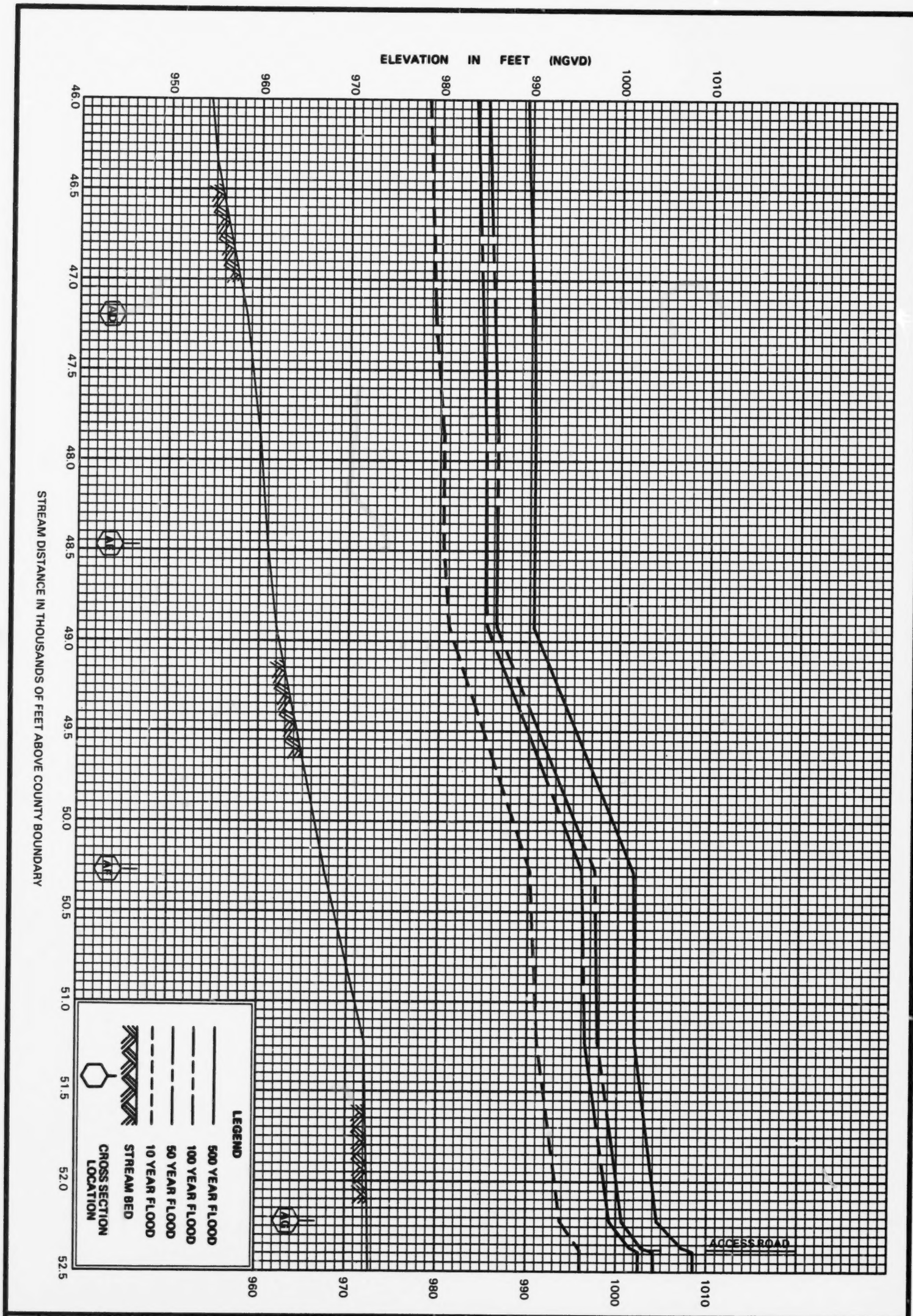
07P

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

FLOOD PROFILES

LEVISA FORK



FEDERAL EMERGENCY MANAGEMENT AGENCY

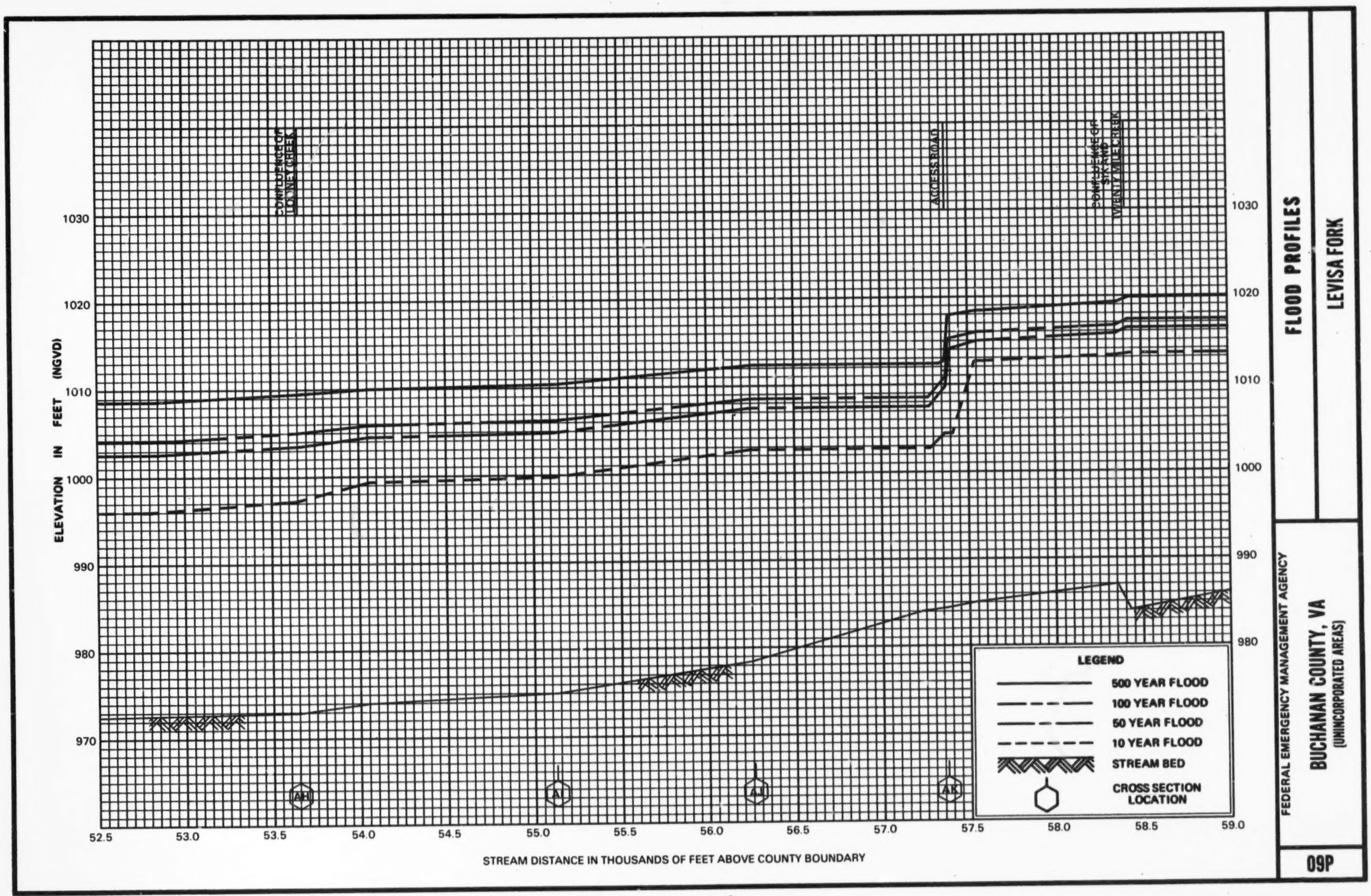
BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

FLOOD PROFILES

LEVISA FORK

08P

32



FLOOD PROFILES

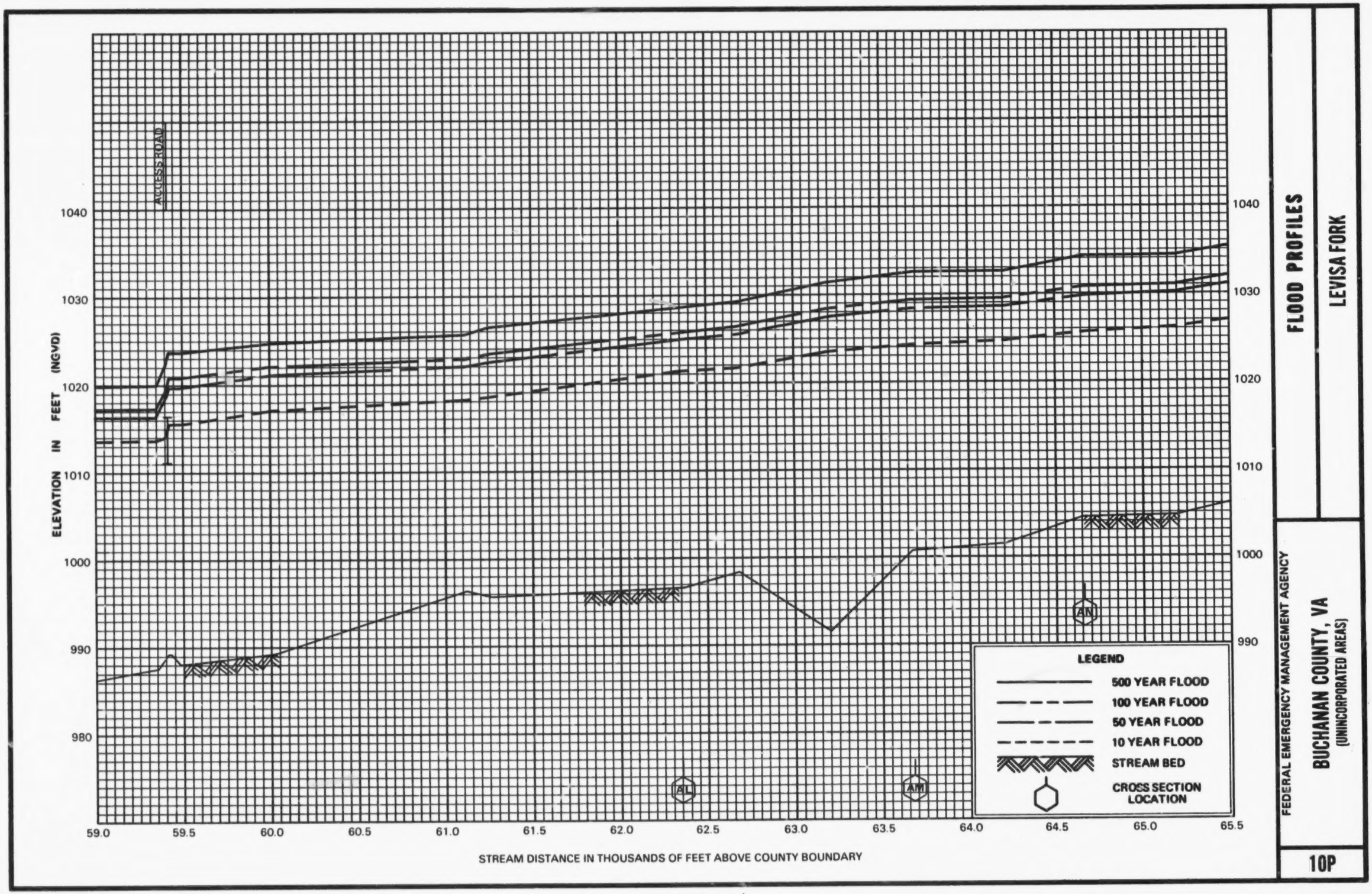
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

09P



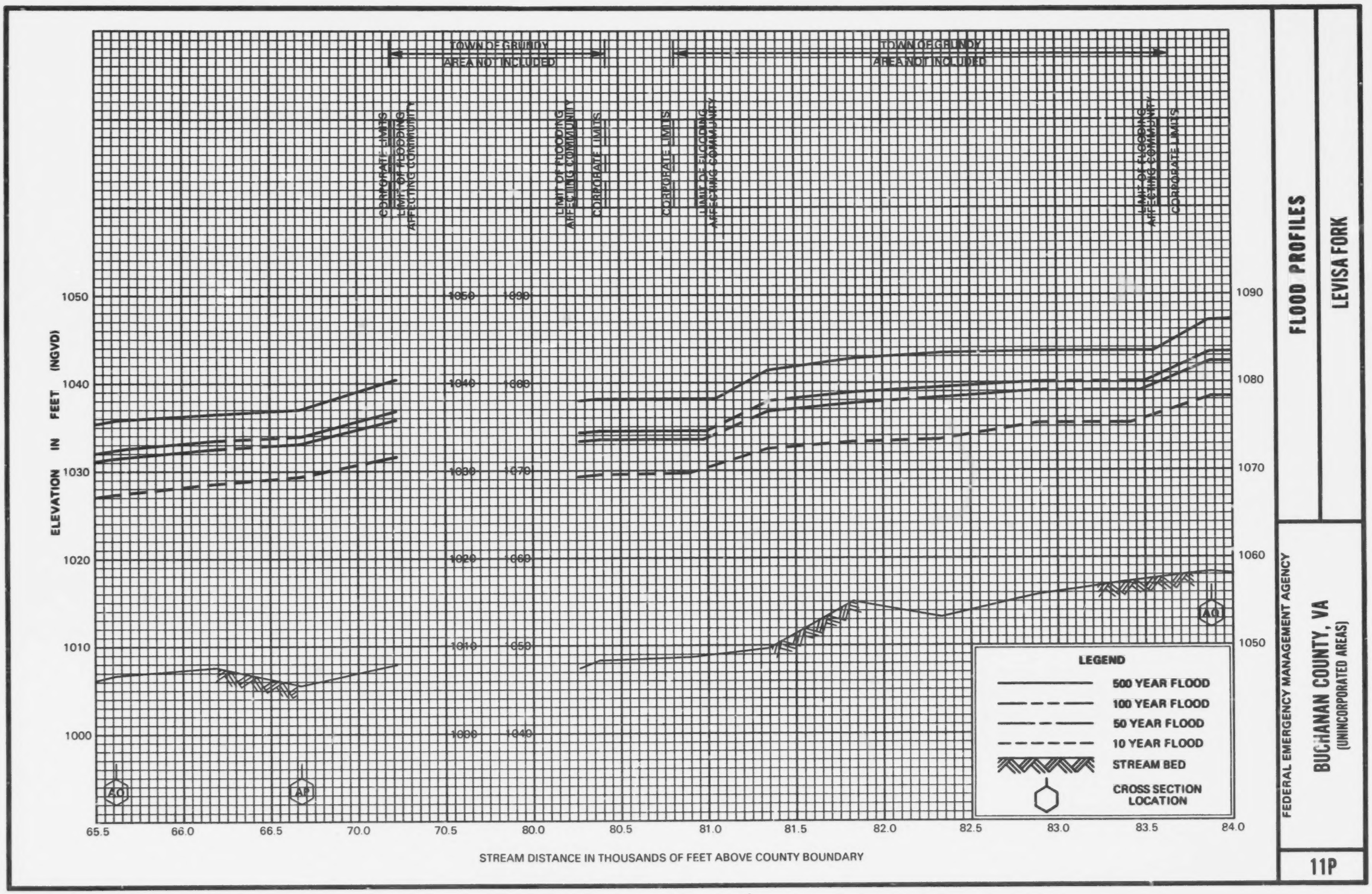
FLOOD PROFILES

LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

10P



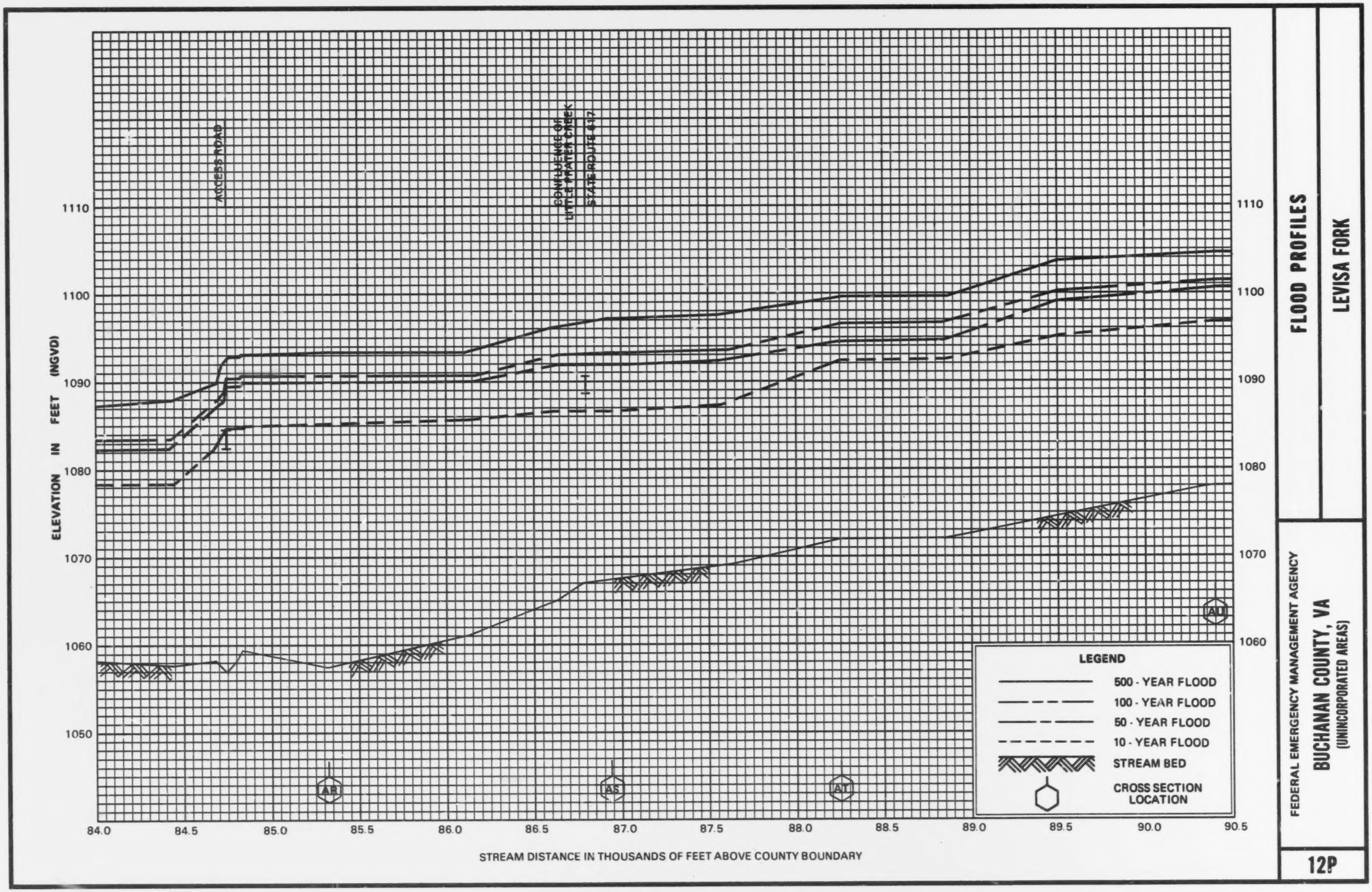
FLOOD PROFILES

LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

11P



FLOOD PROFILES

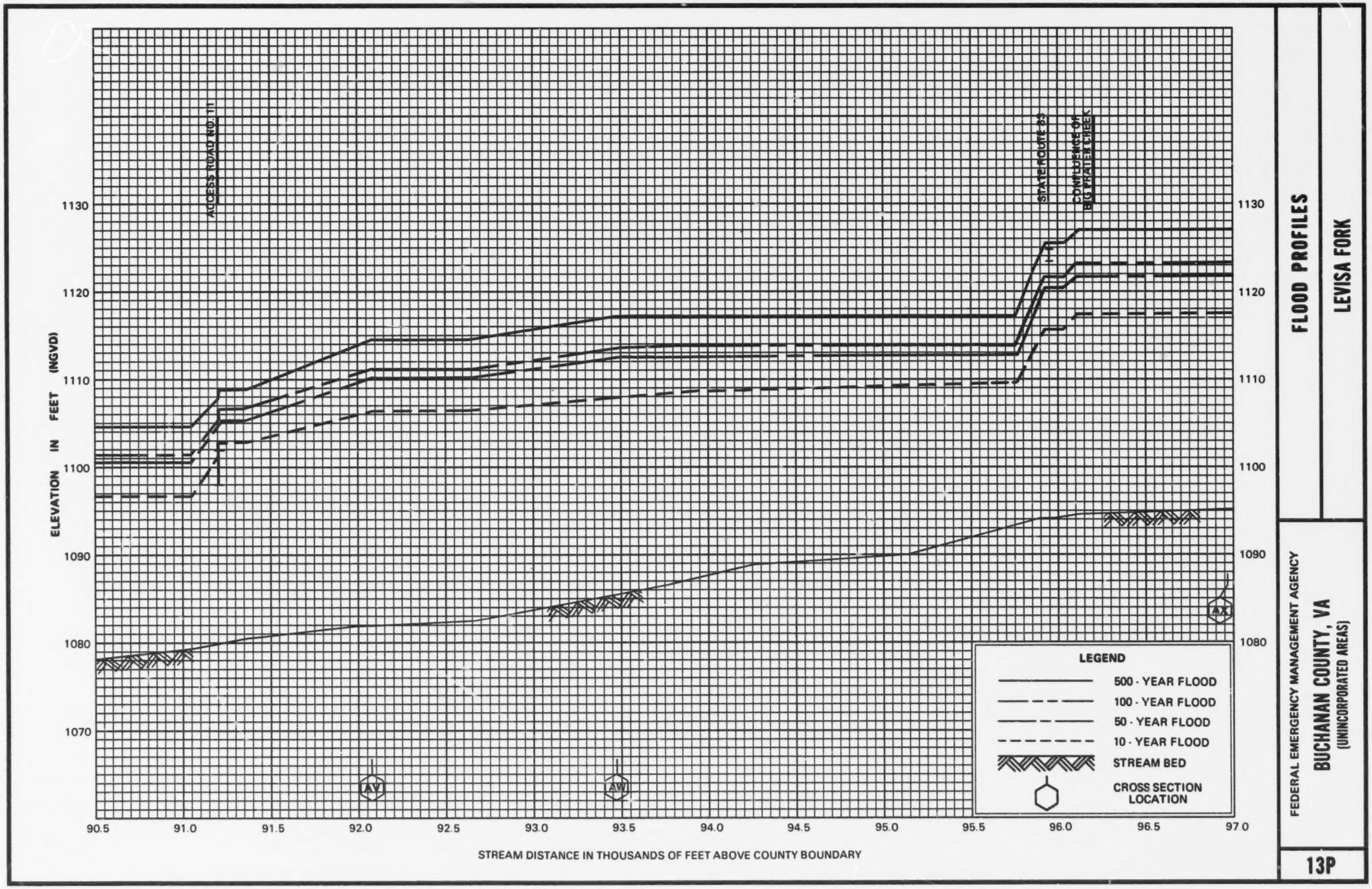
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

12P



FLOOD PROFILES

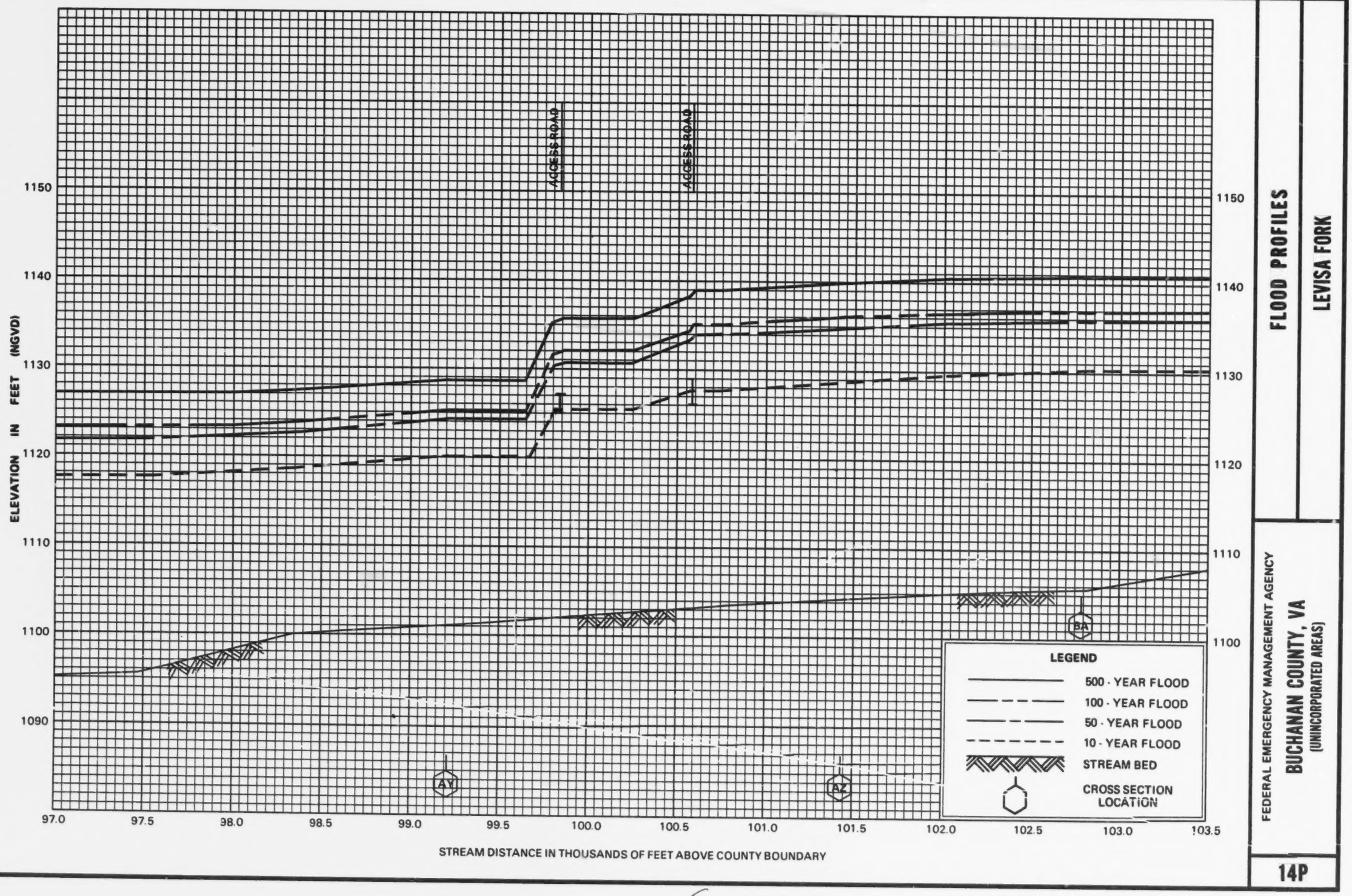
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

13P



FLOOD PROFILES

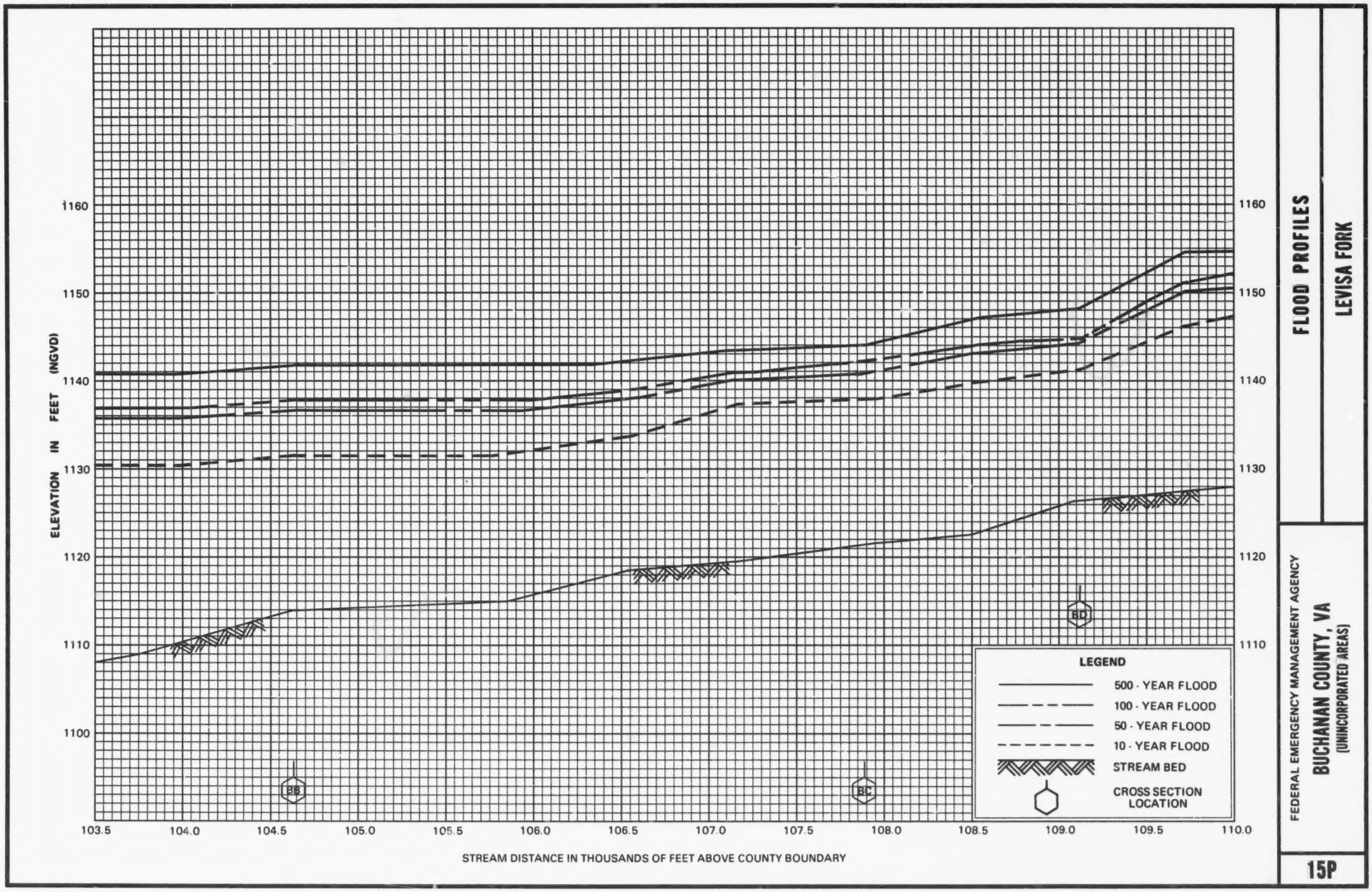
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

14P



FLOOD PROFILES

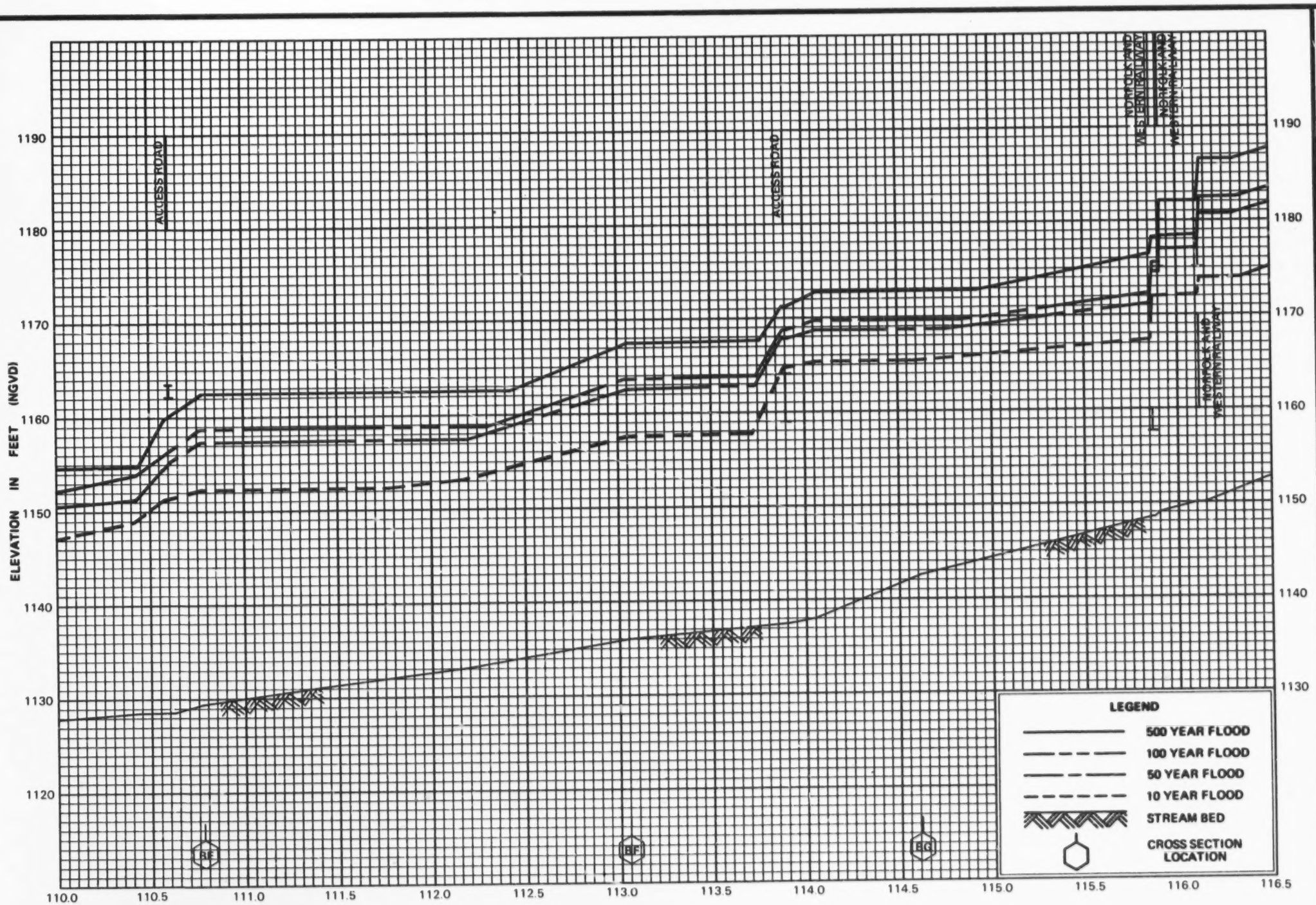
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

15P



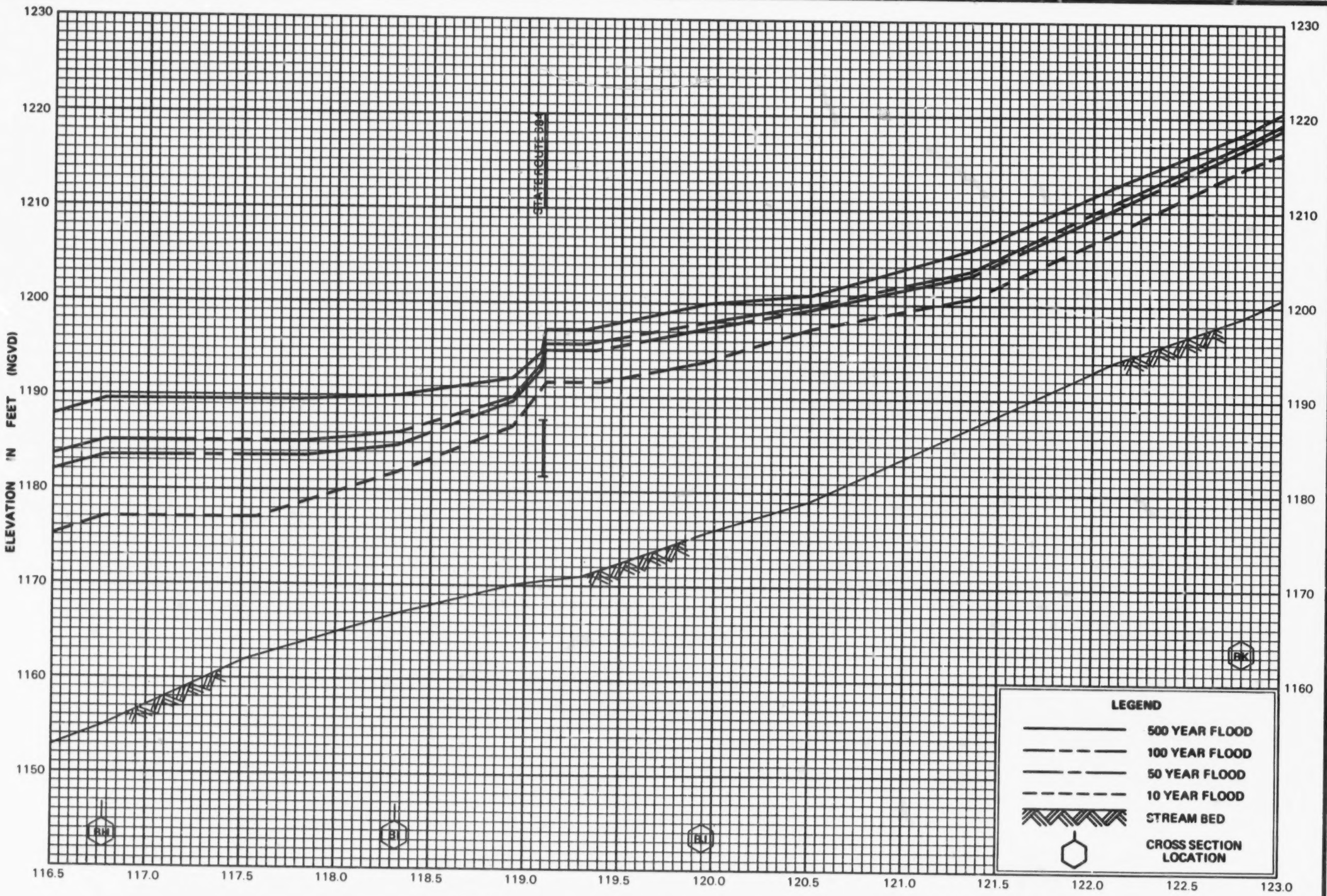
FLOOD PROFILES

LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

16P



FLOOD PROFILES

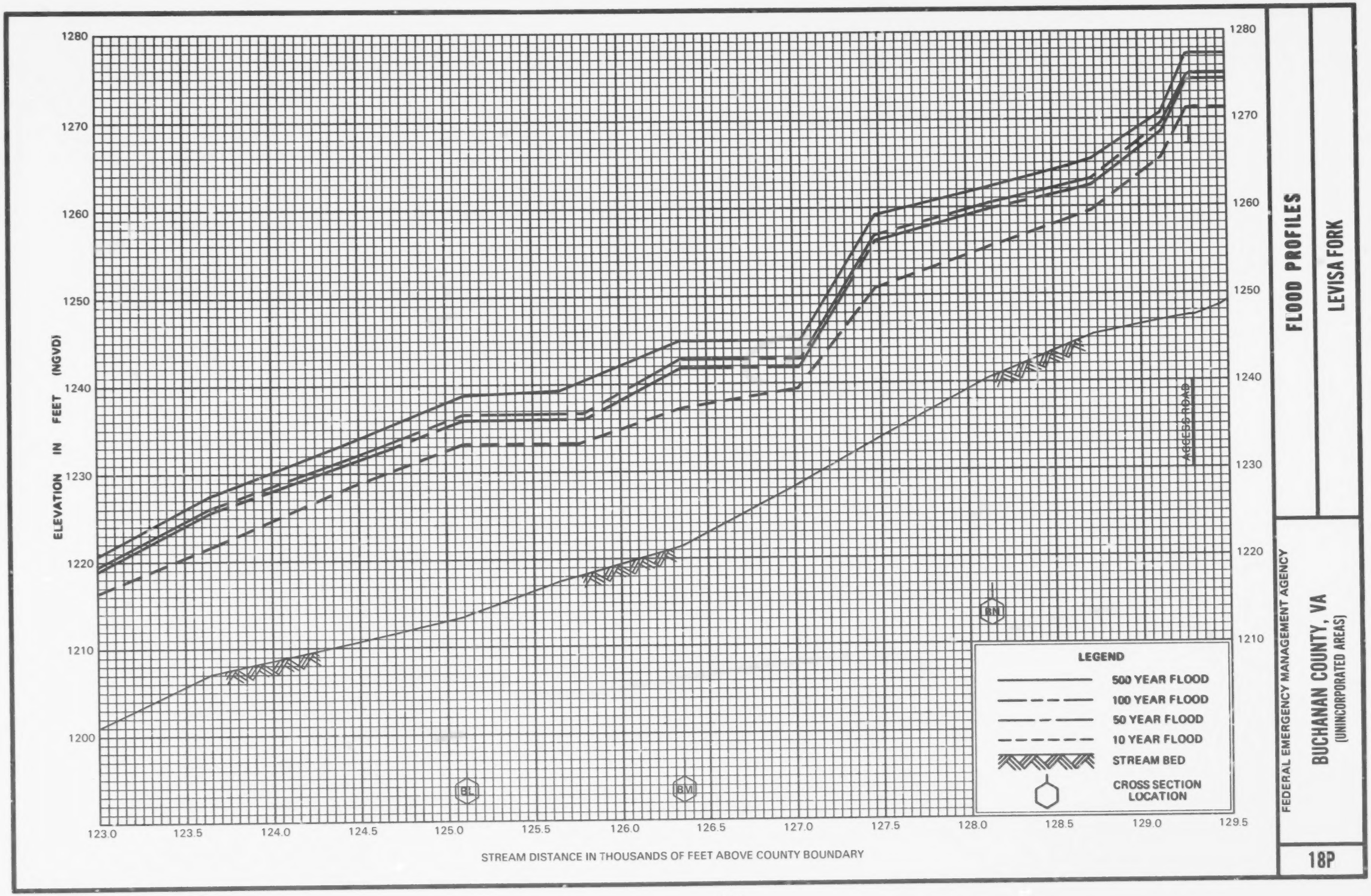
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

17P

41



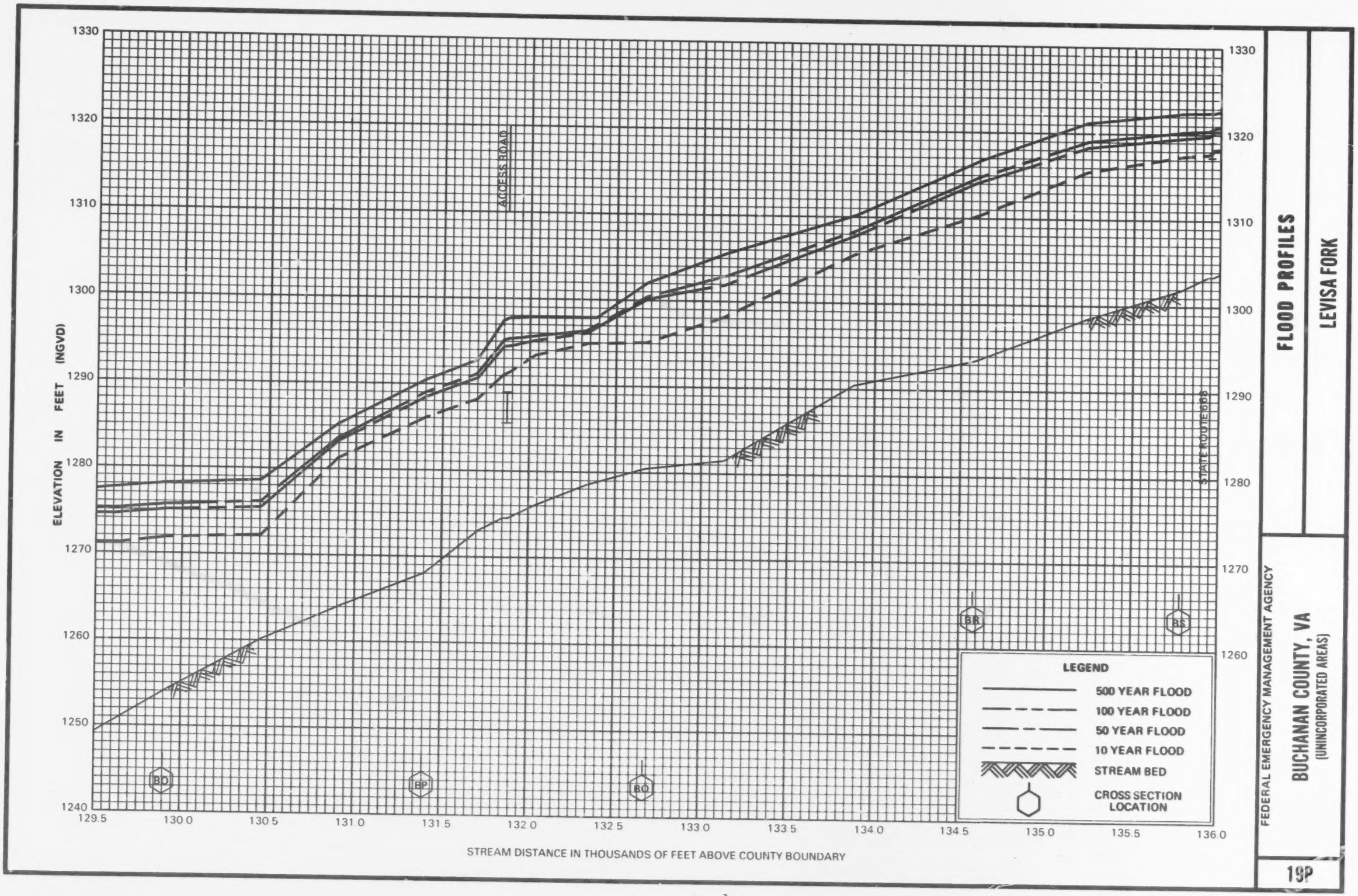
FLOOD PROFILES

LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

18P



FLOOD PROFILES

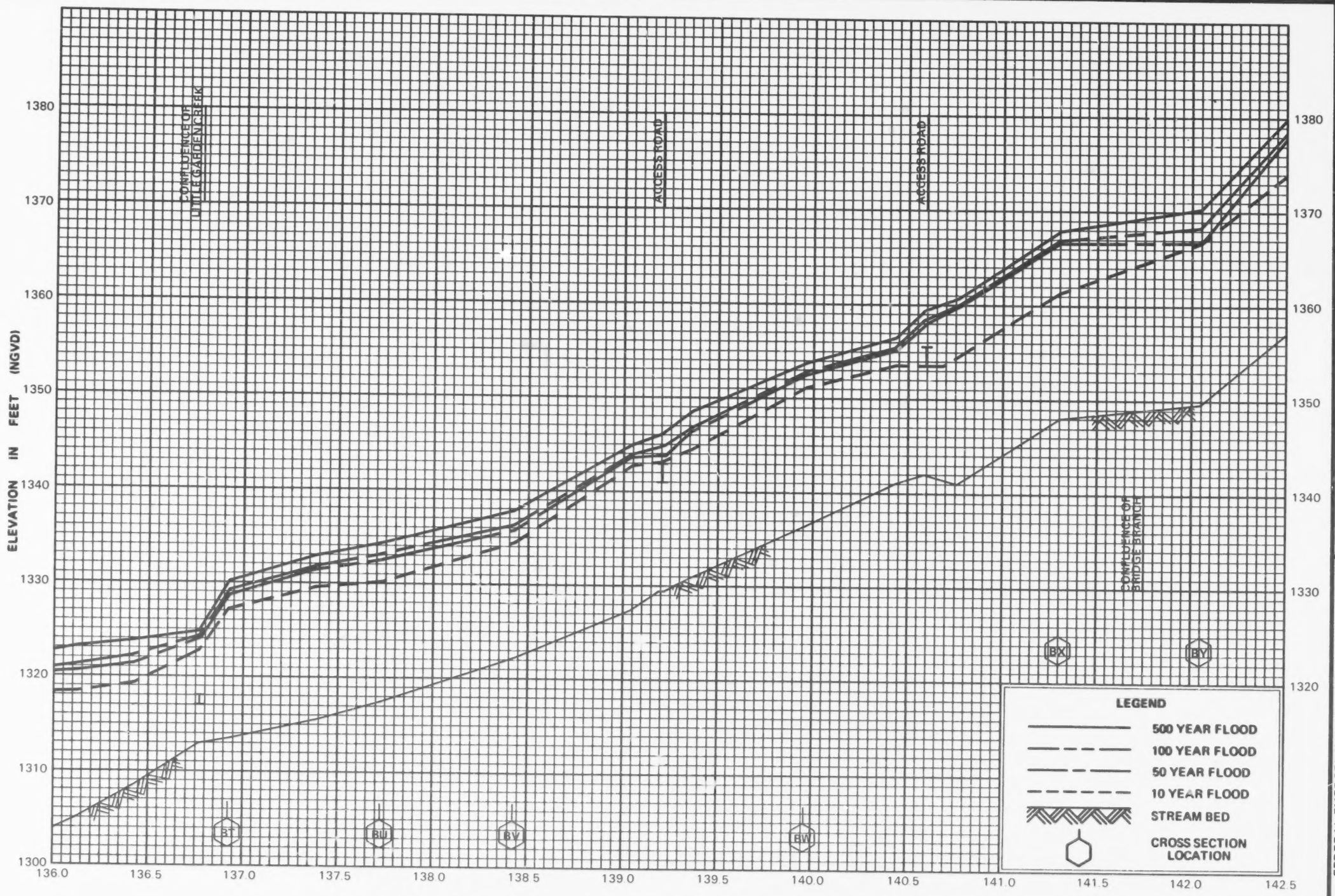
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

19P



FLOOD PROFILES

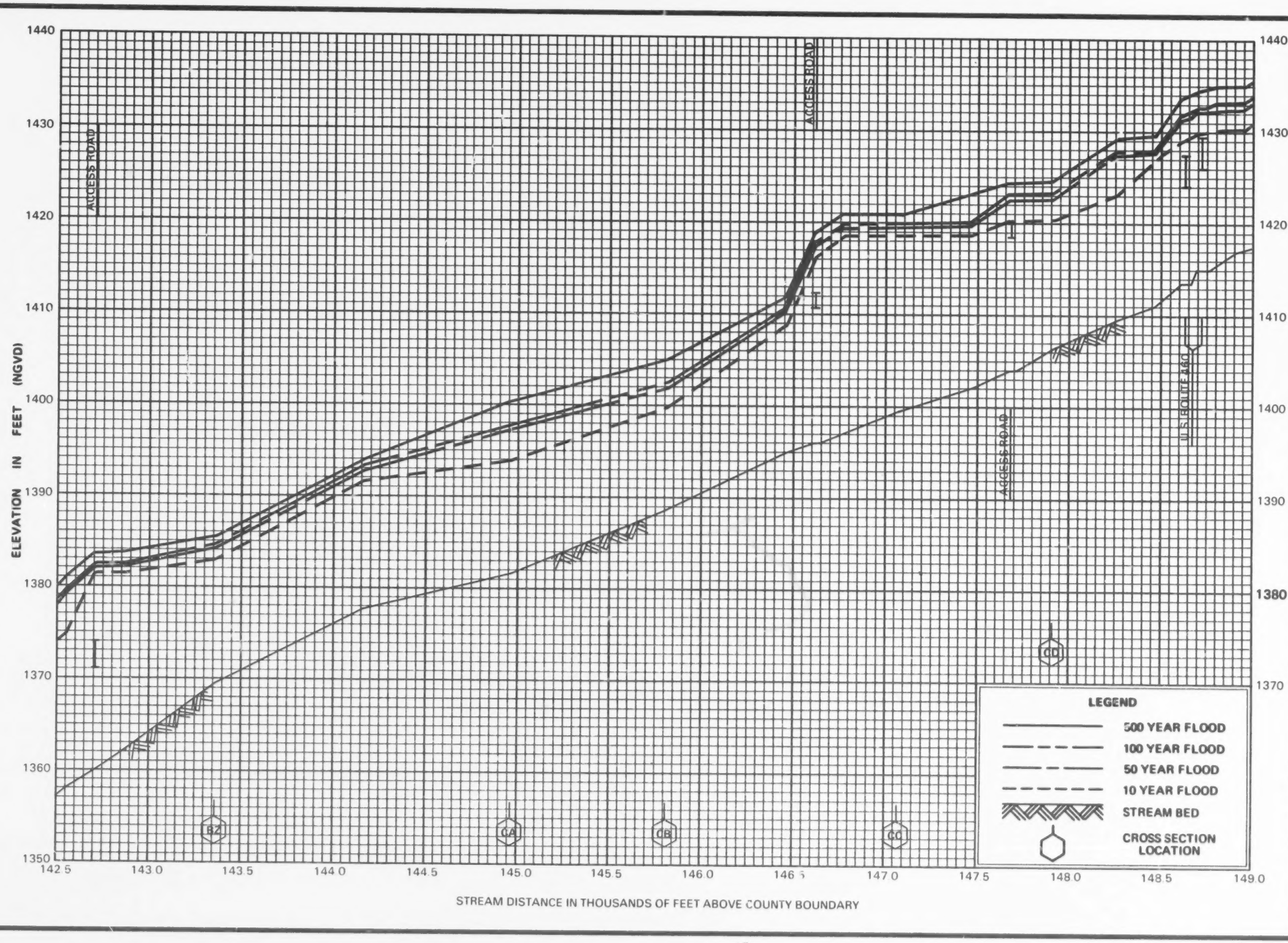
LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

20P



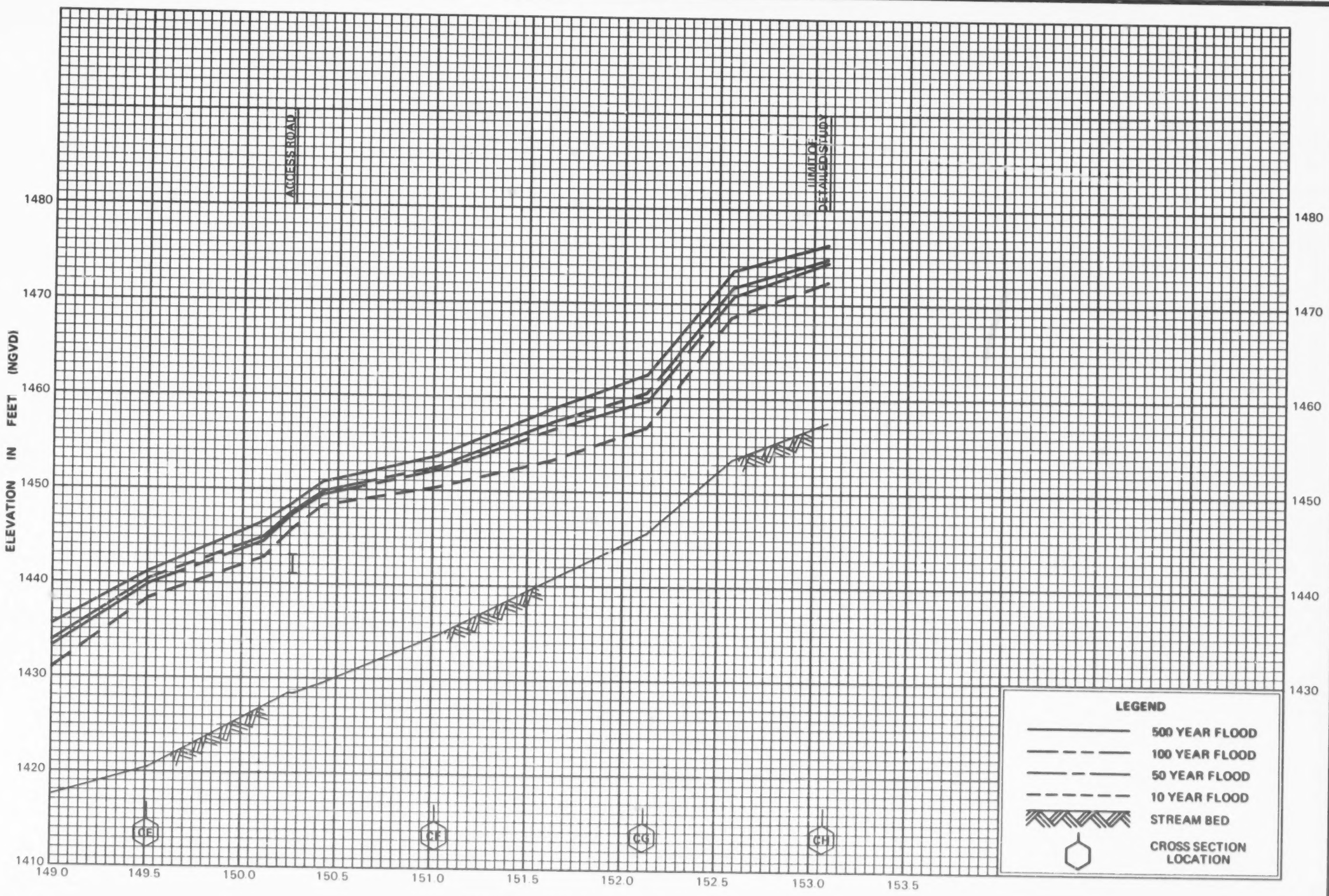
FLOOD PROFILES

LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

21P



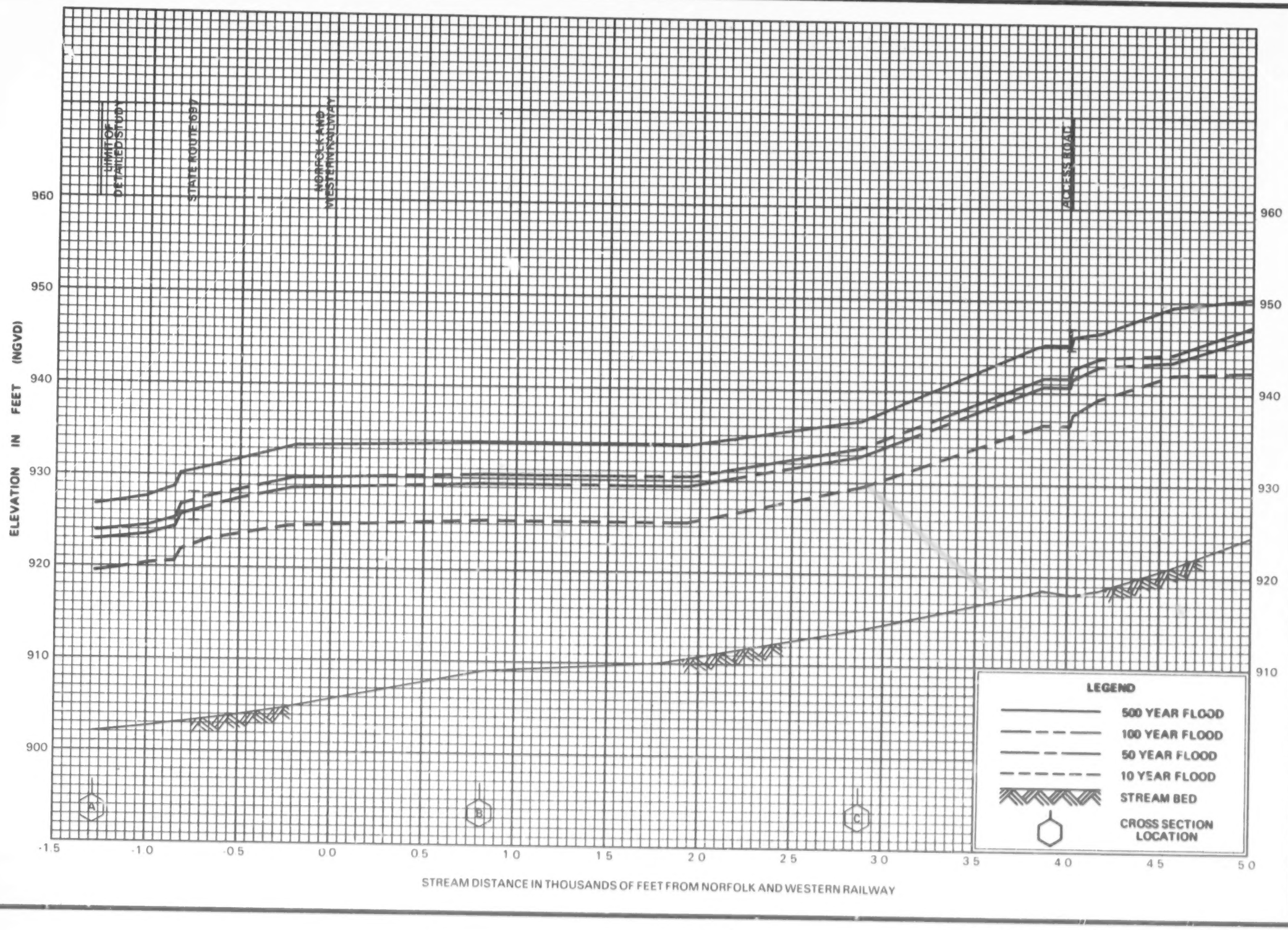
FLOOD PROFILES

LEVISA FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

22P



FLOOD PROFILES

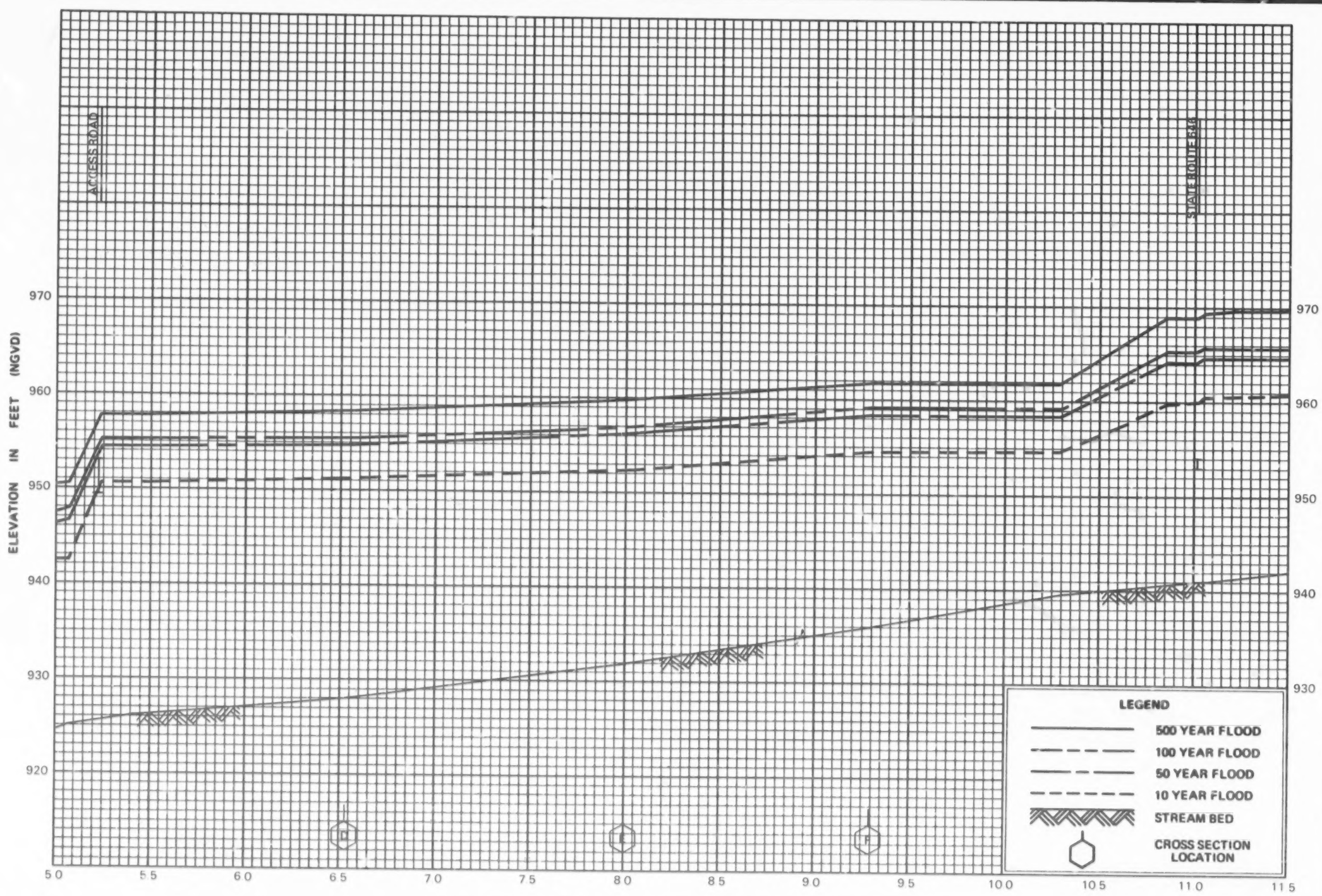
KNOX CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

23P



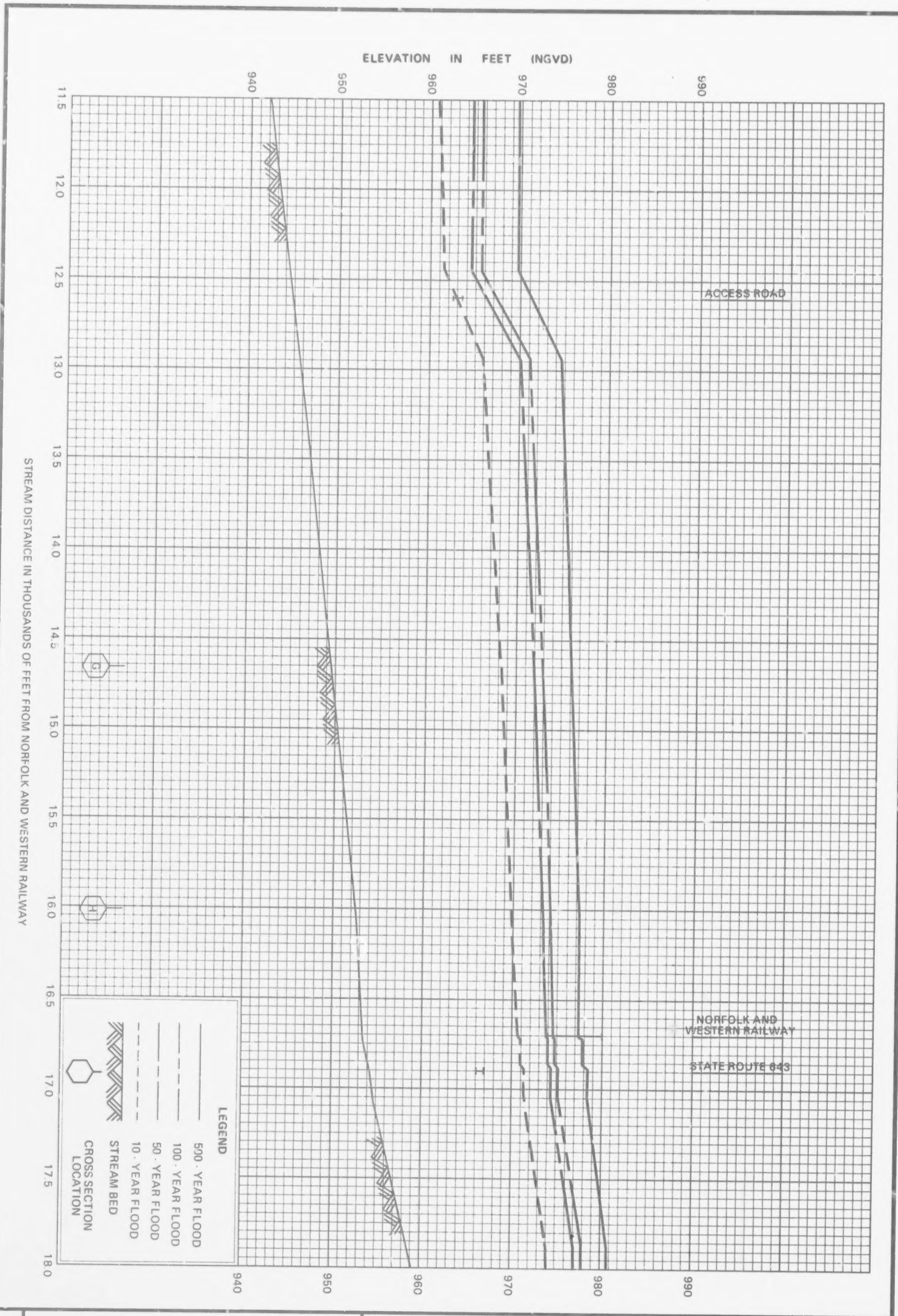
FLOOD PROFILES

KNOX CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)



25P

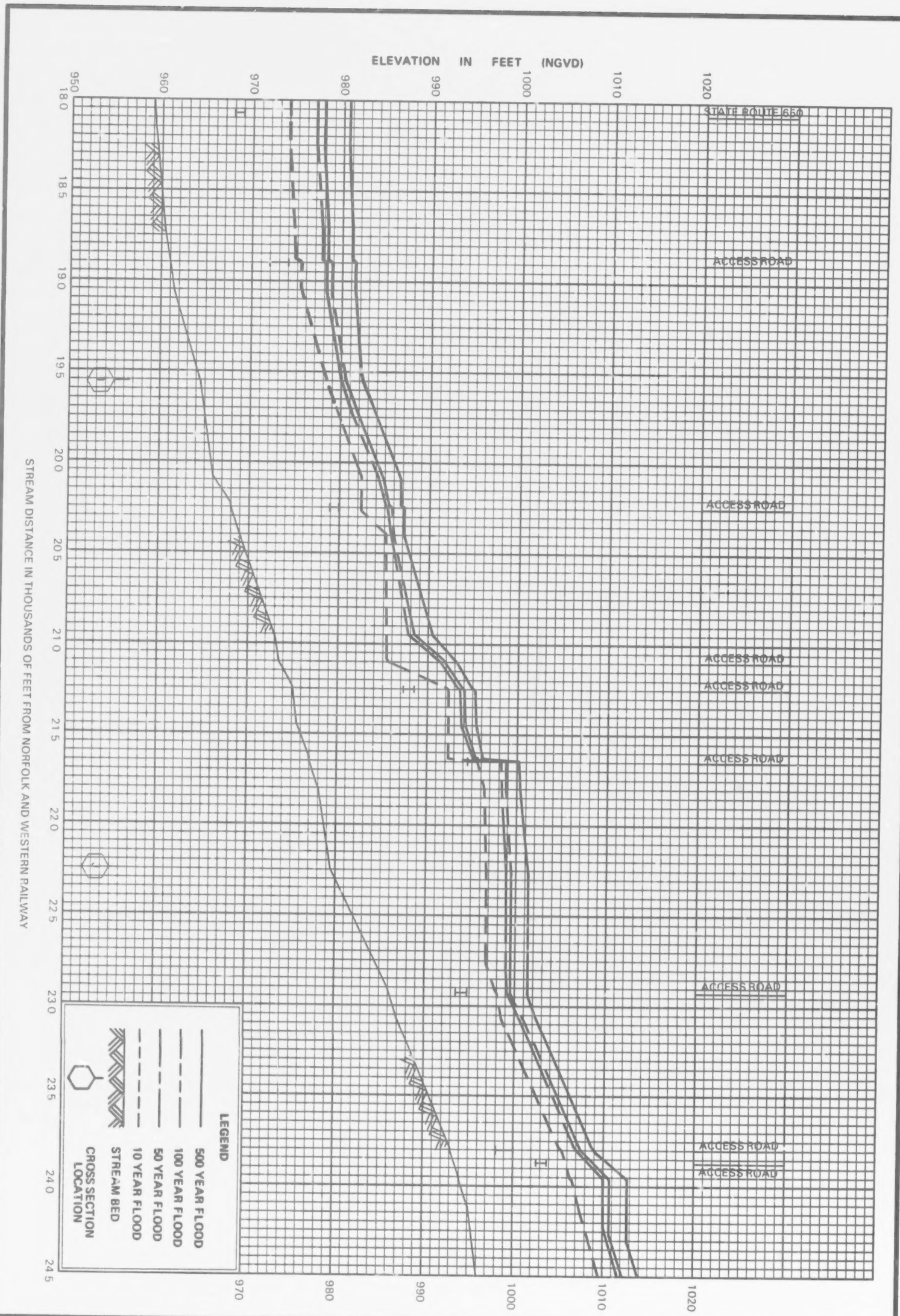
FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

FLOOD PROFILES

KNOX CREEK



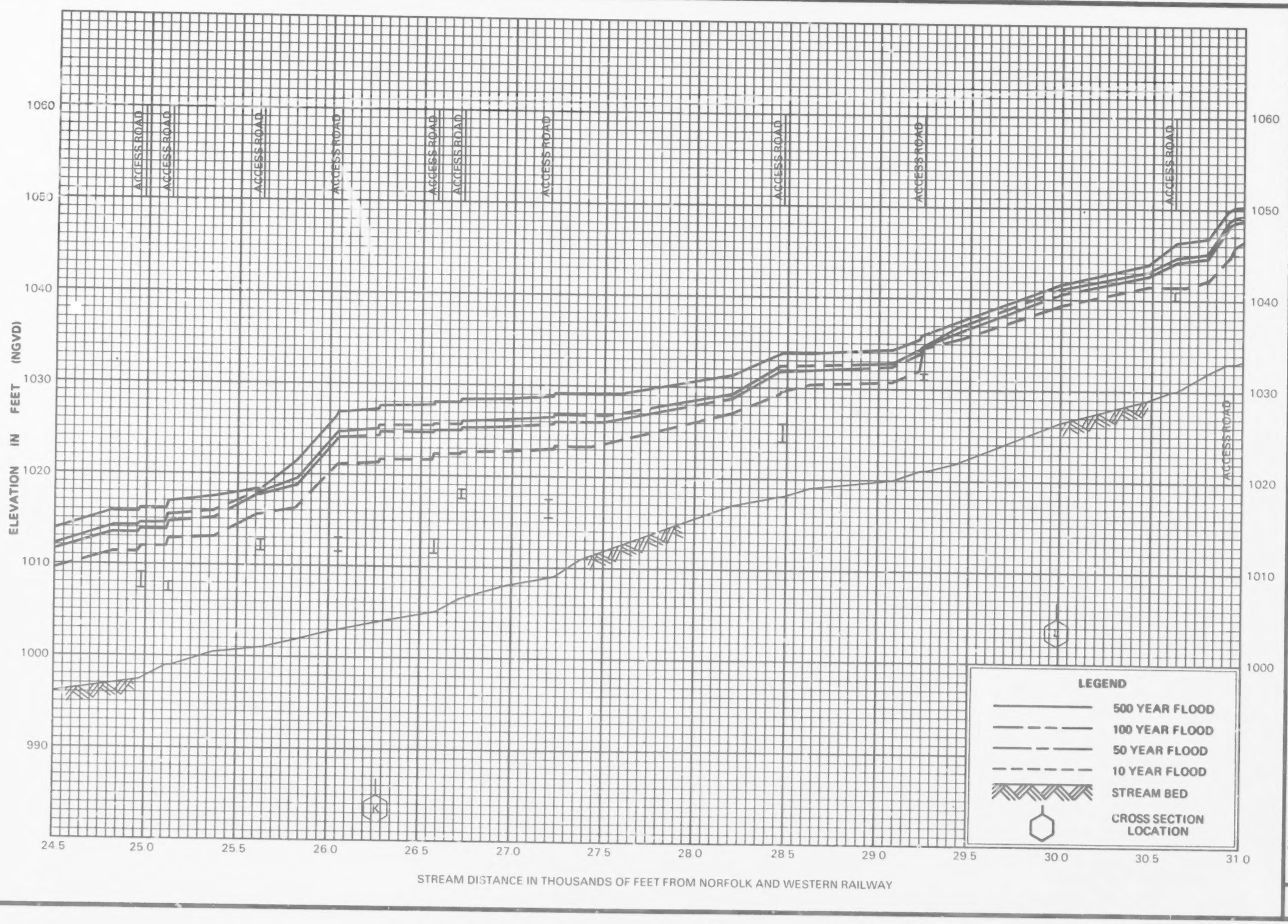
FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

FLOOD PROFILES

KNOX CREEK

26P



STREAM DISTANCE IN THOUSANDS OF FEET FROM NORFOLK AND WESTERN RAILWAY

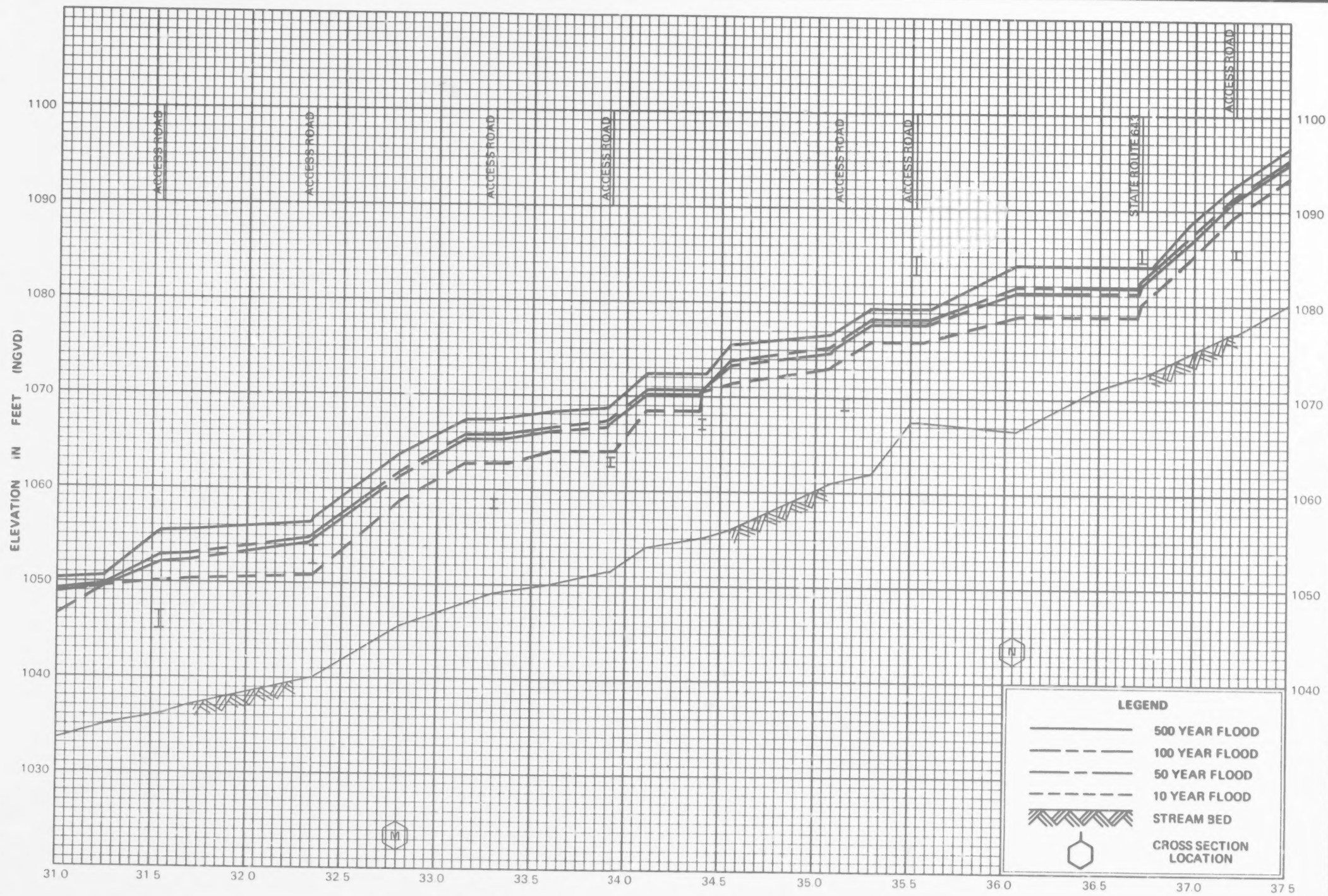
FLOOD PROFILES

KNOX CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

27P



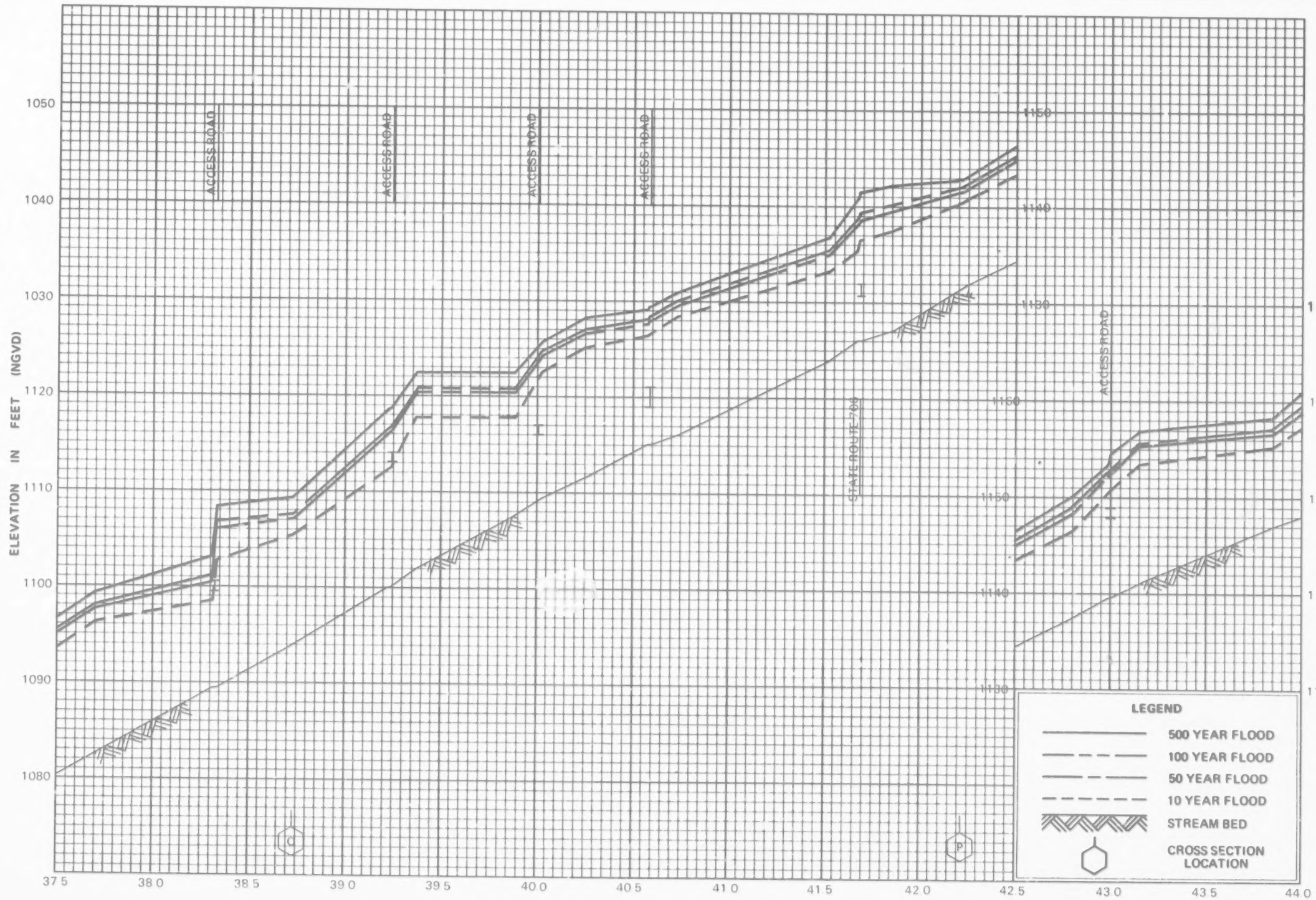
FLOOD PROFILES

KNOX CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

28P



FLOOD PROFILES

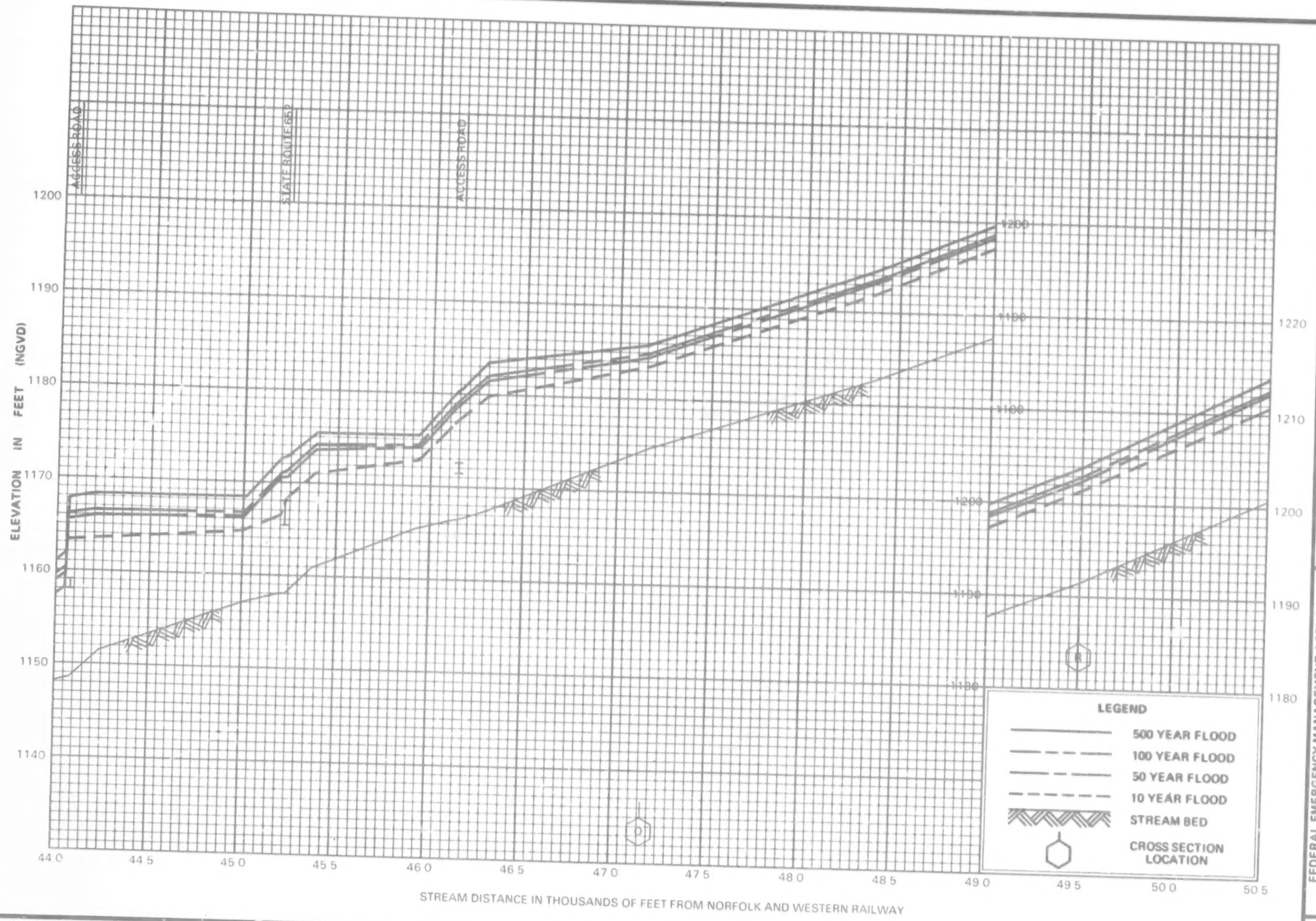
KNOX CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

29P



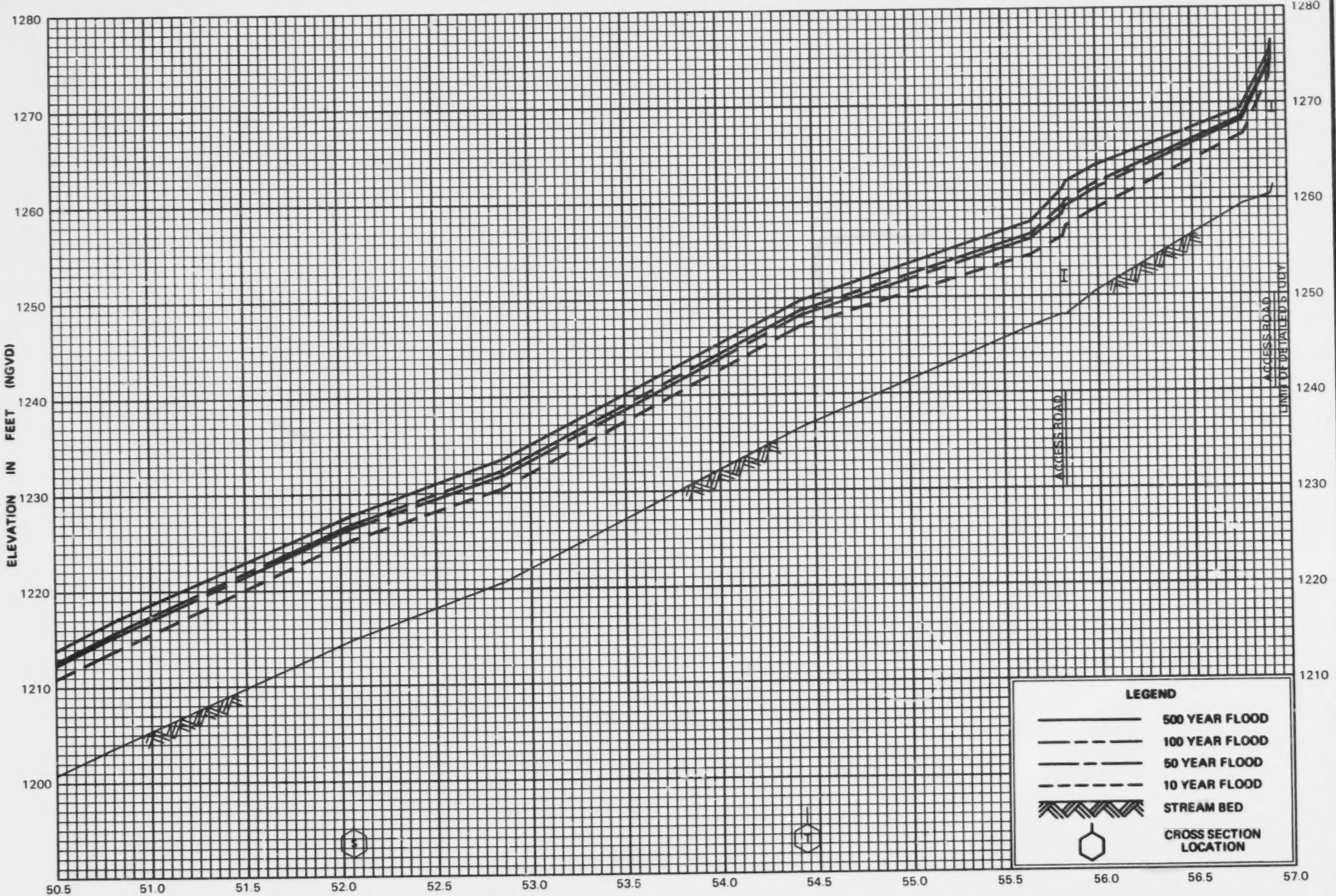
FLOOD PROFILES

KNOX CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

30P



FLOOD PROFILES

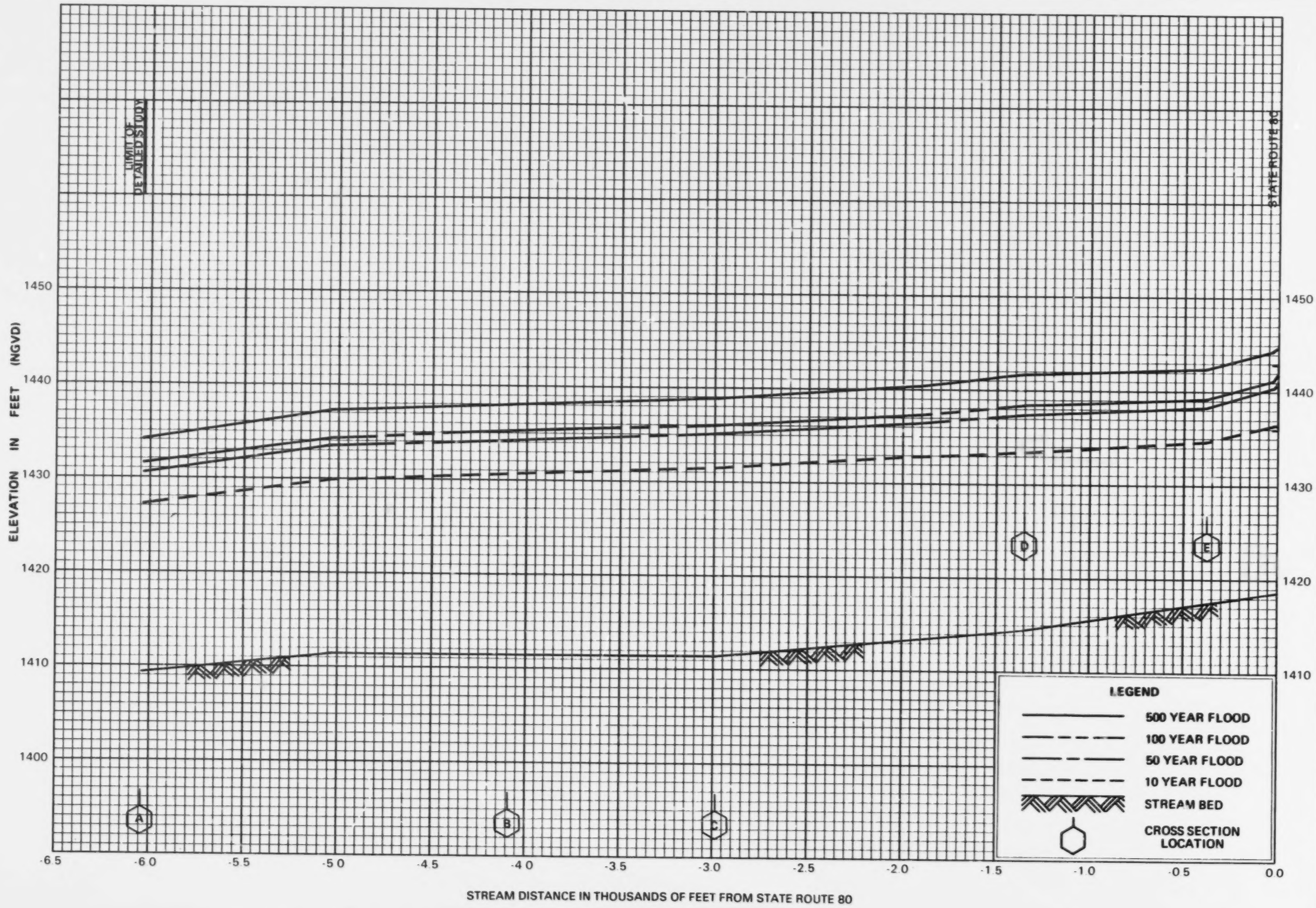
KNOX CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

31P



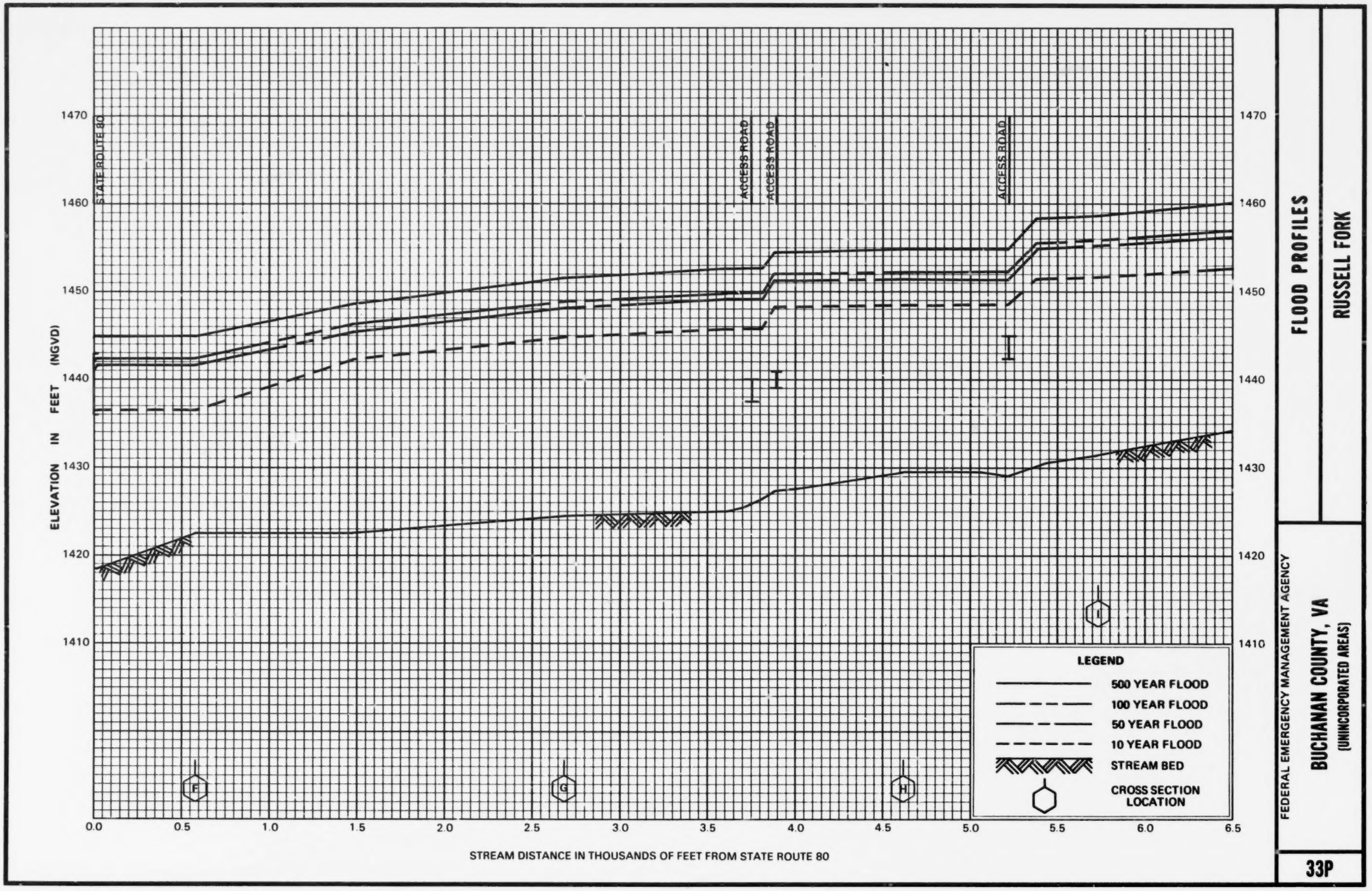
FLOOD PROFILES

RUSSELL FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

32P



FLOOD PROFILES

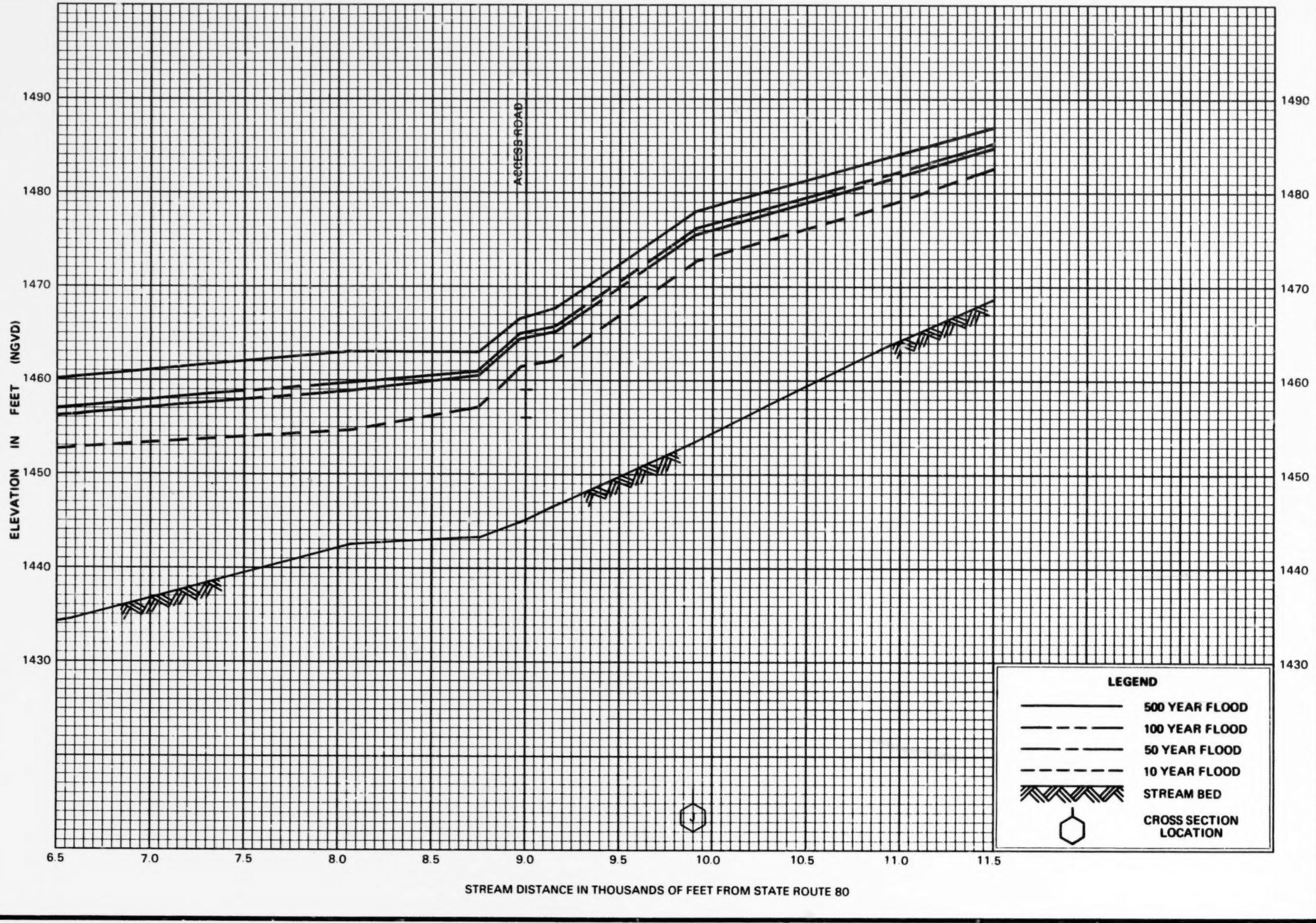
RUSSELL FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

33P



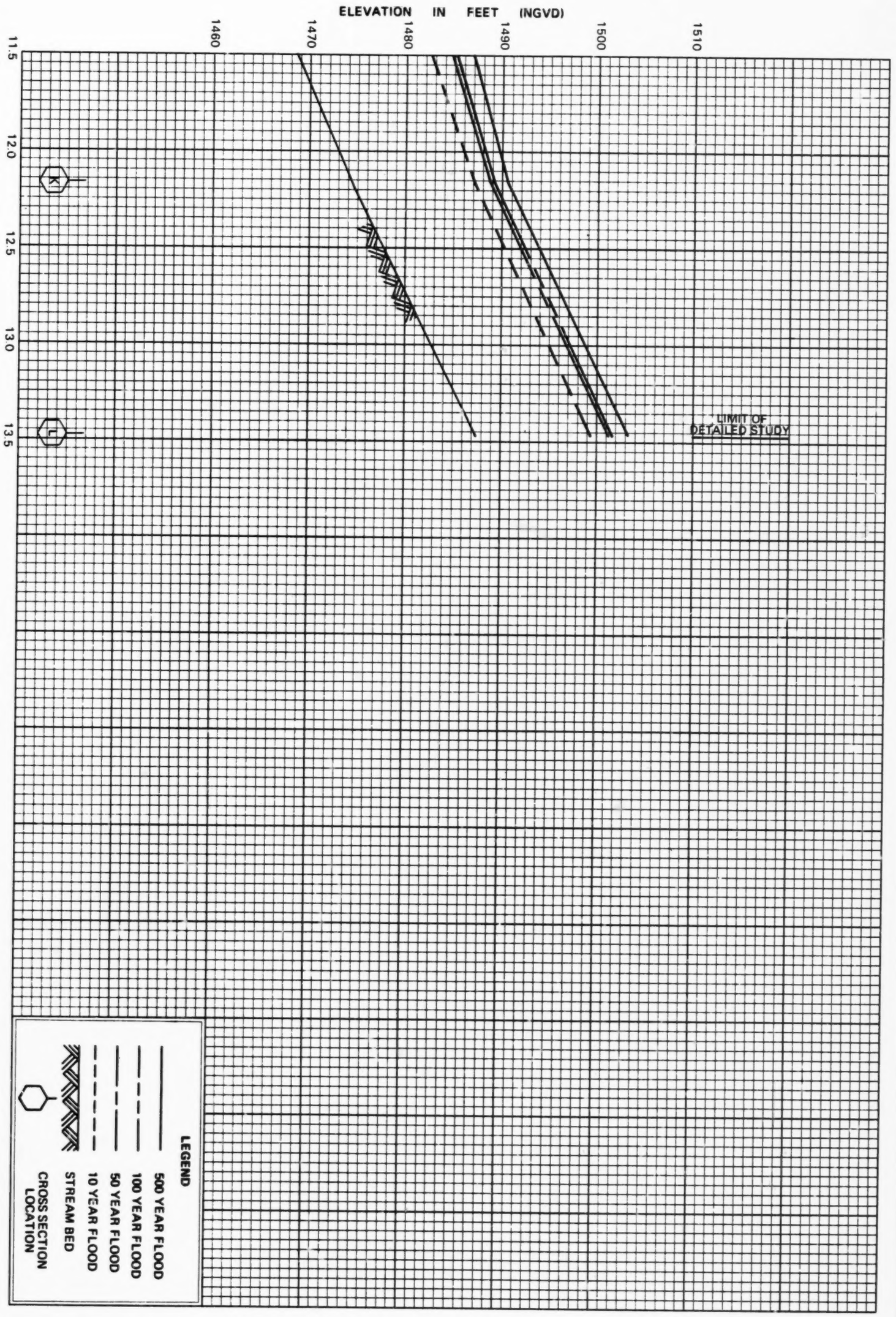
FLOOD PROFILES

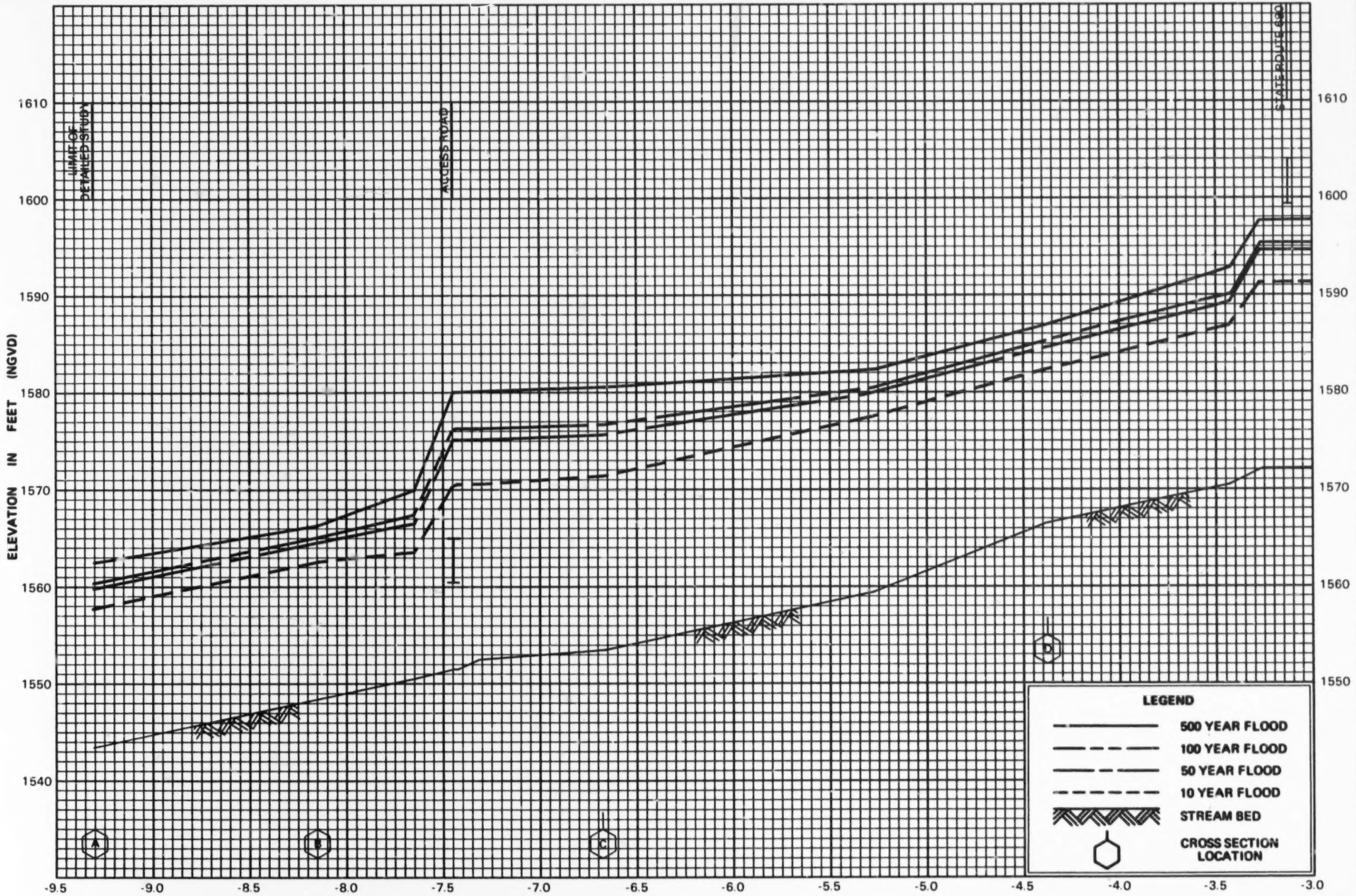
RUSSELL FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)


ELEVATION IN FEET (NGVD)
1460
1470
1480
1490
1500
1510
11.5
12.0
12.5
13.0
13.5
K
L
LIMIT OF DETAILED STUDY
STREAM DISTANCE IN THOUSANDS OF FEET FROM STATE ROUTE 80
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION



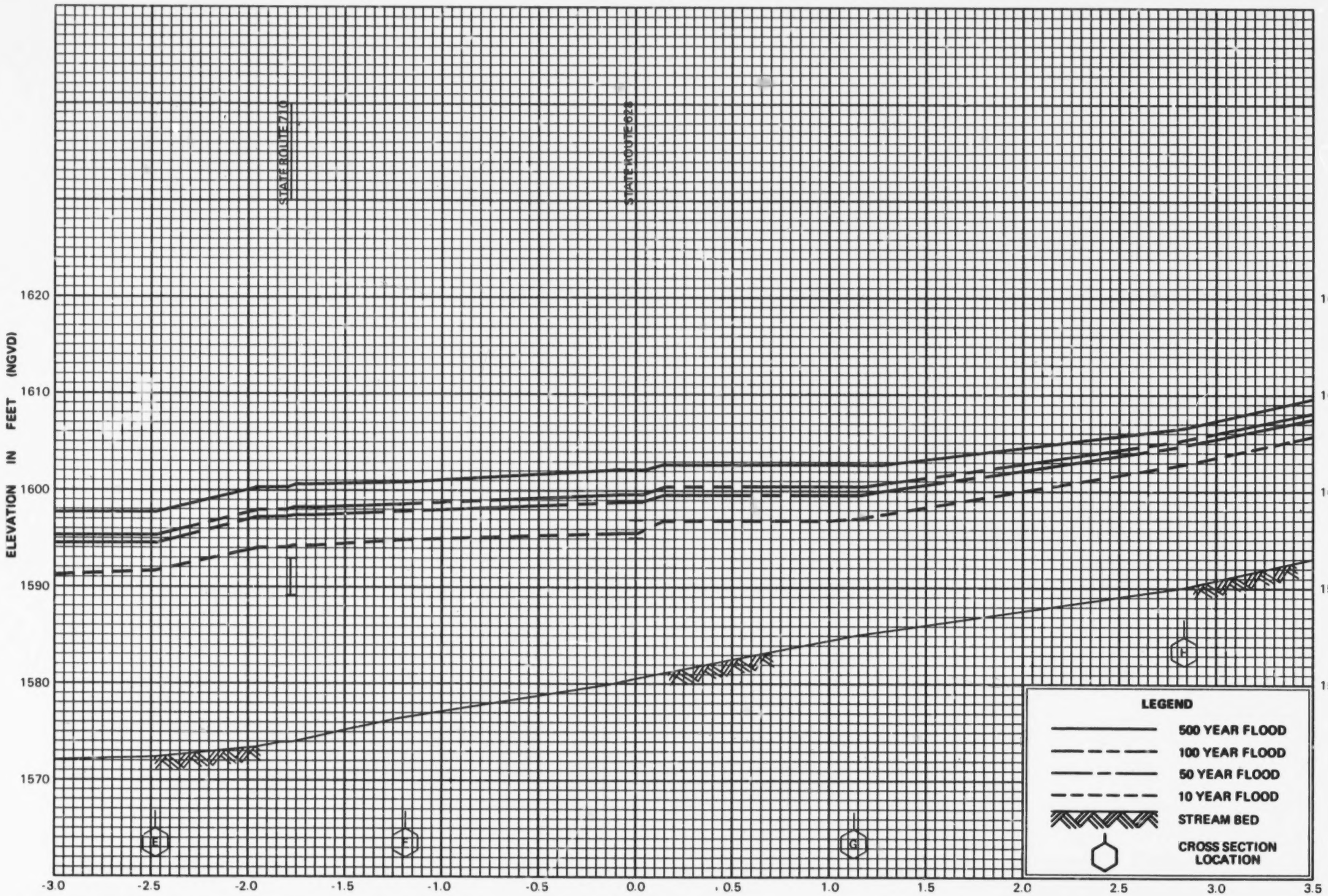
FLOOD PROFILES

DISMAL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

36P



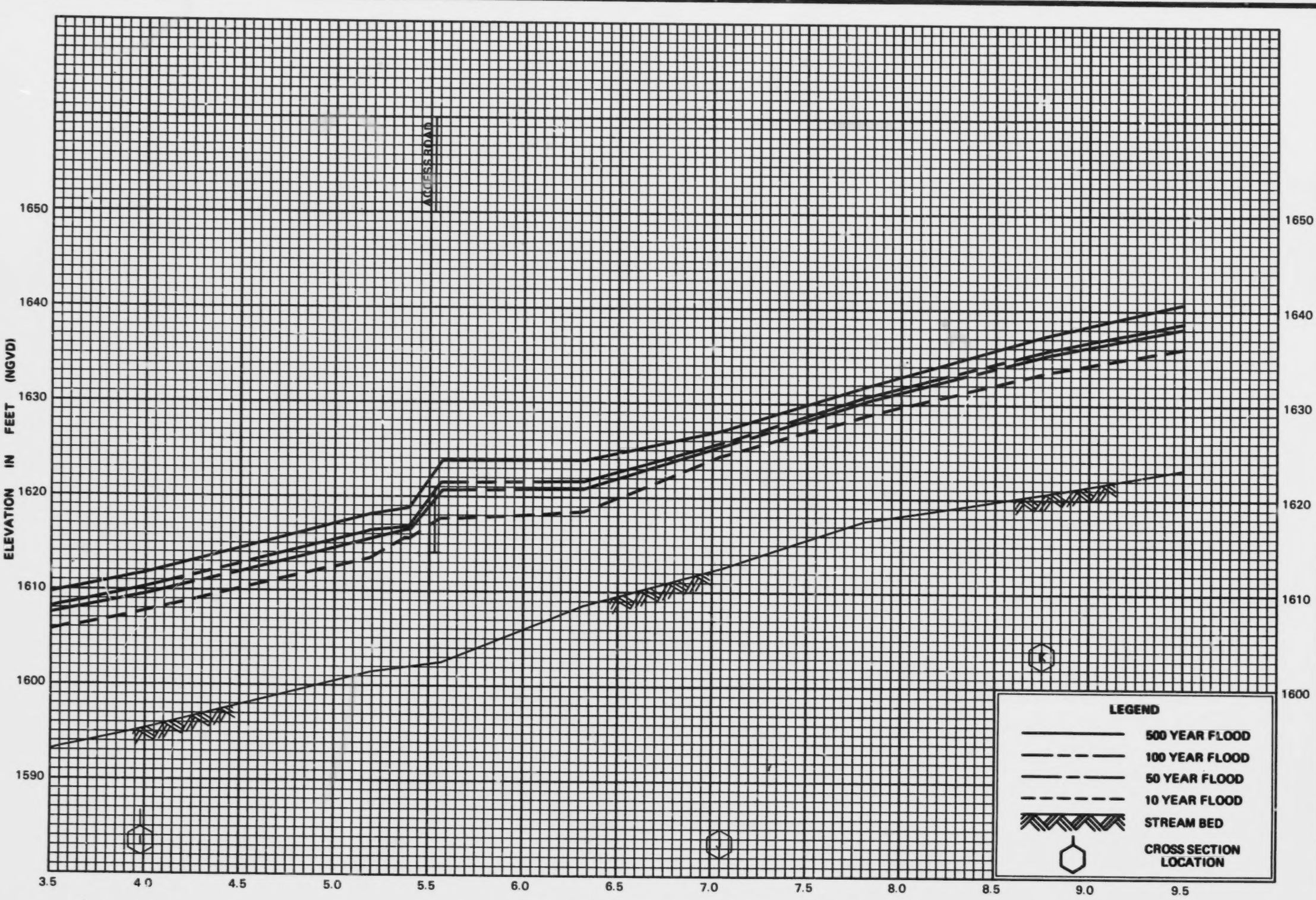
FLOOD PROFILES

DISMAL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

37P



FLOOD PROFILES

DISMAL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

38P

FLOOD PROFILES

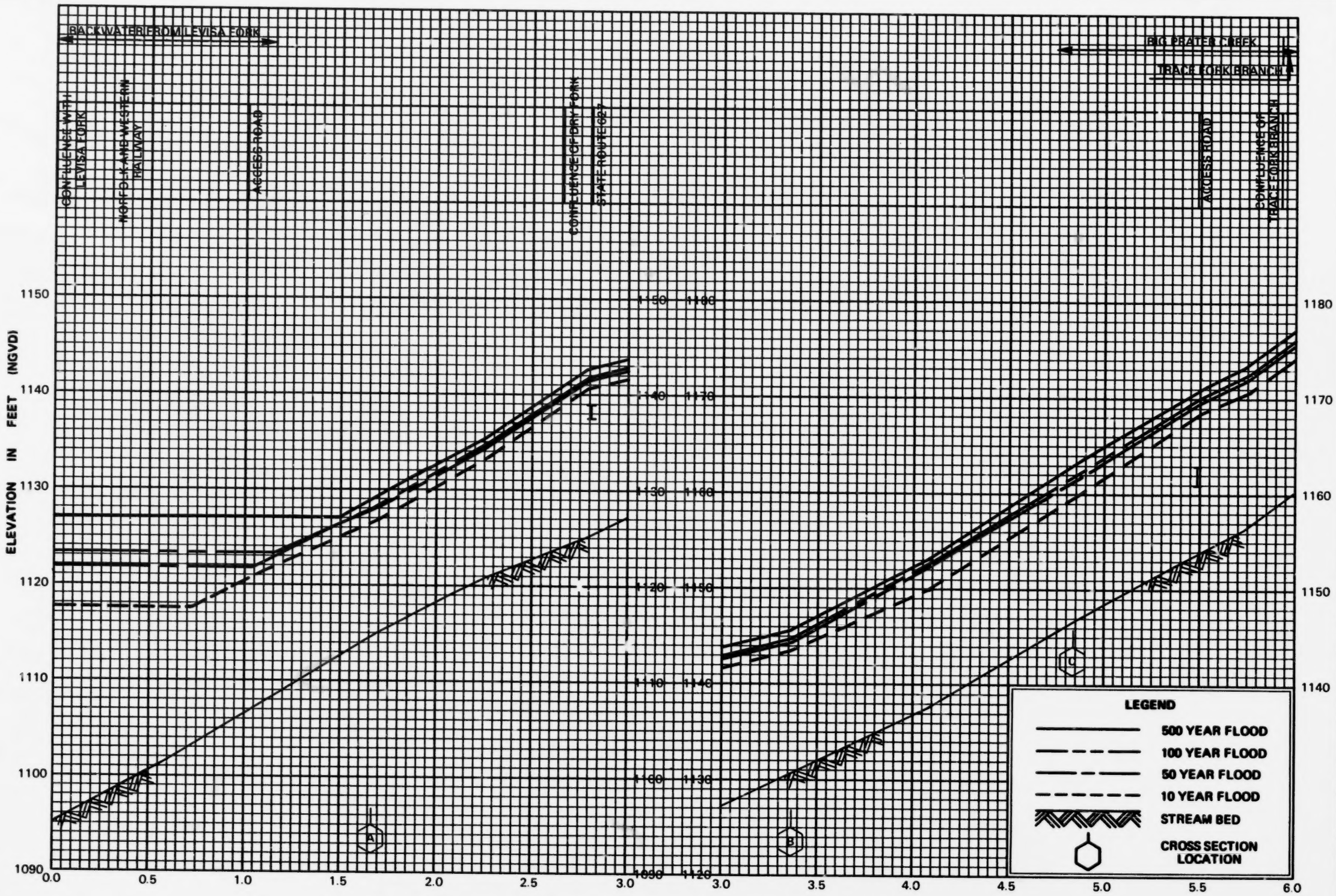
DISMAL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

39P

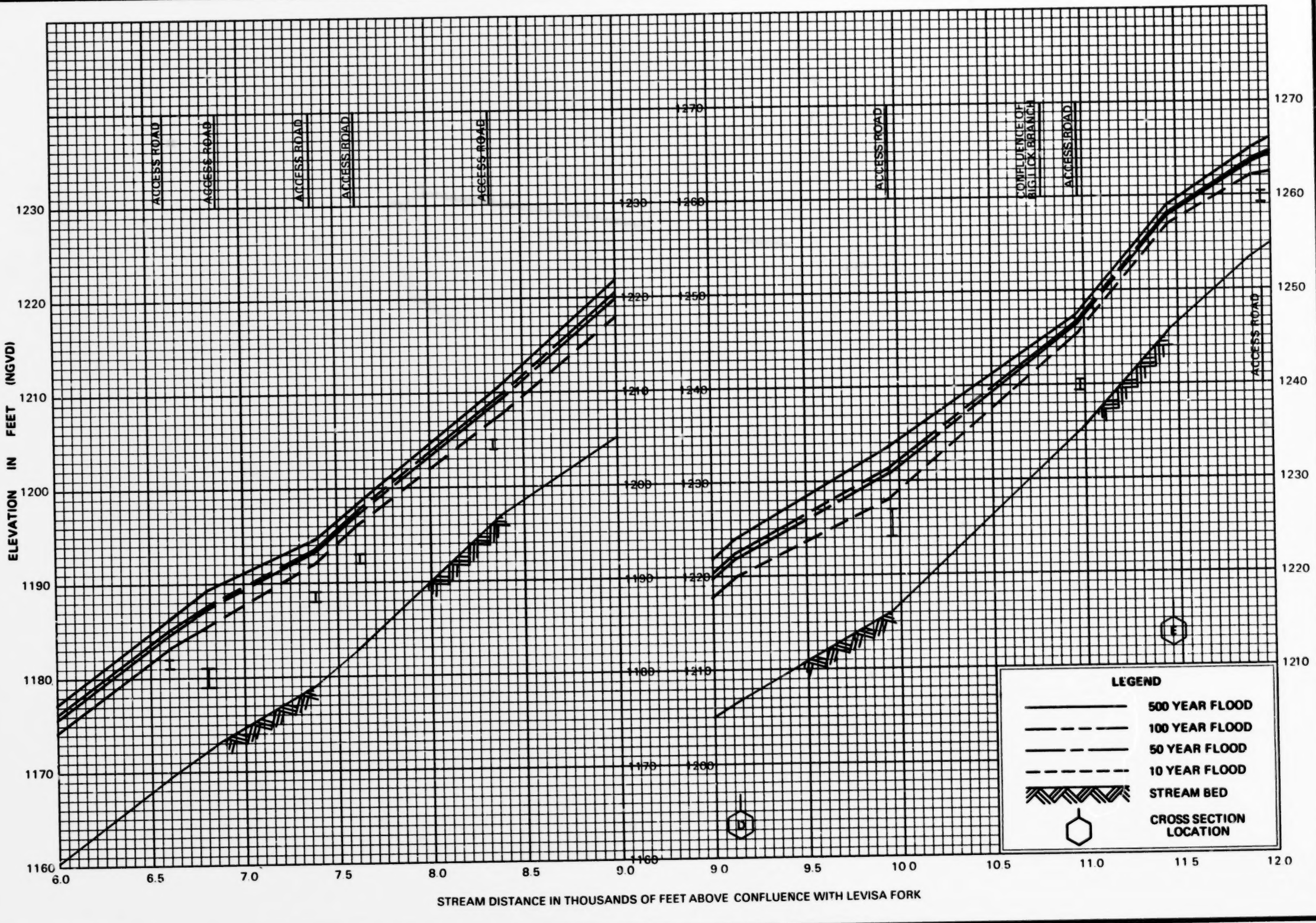


FLOOD PROFILES

BIG PRATER CREEK-TRACE FORK BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)



FLOOD PROFILES

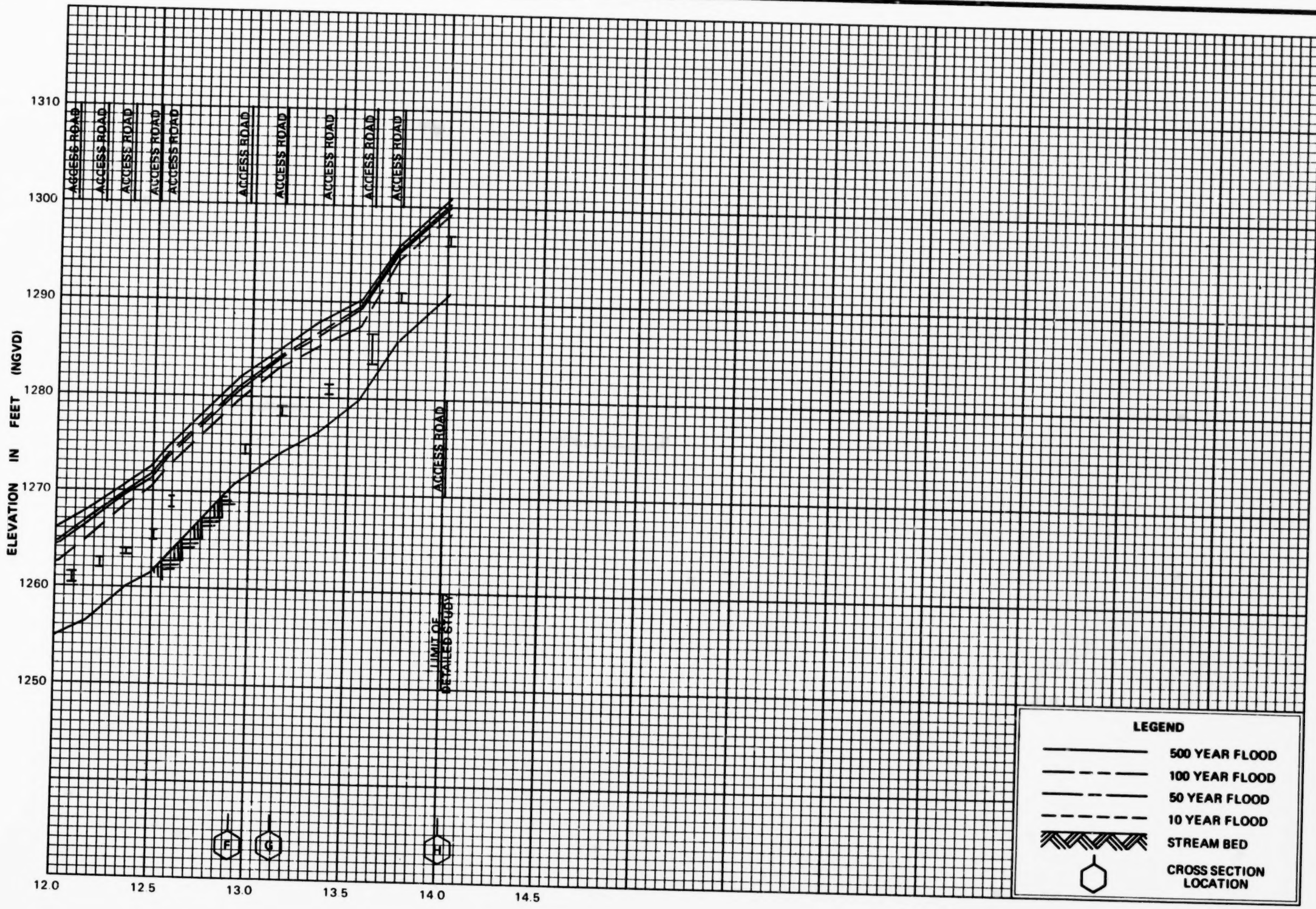
TRACE FORK BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

41P



FLOOD PROFILES

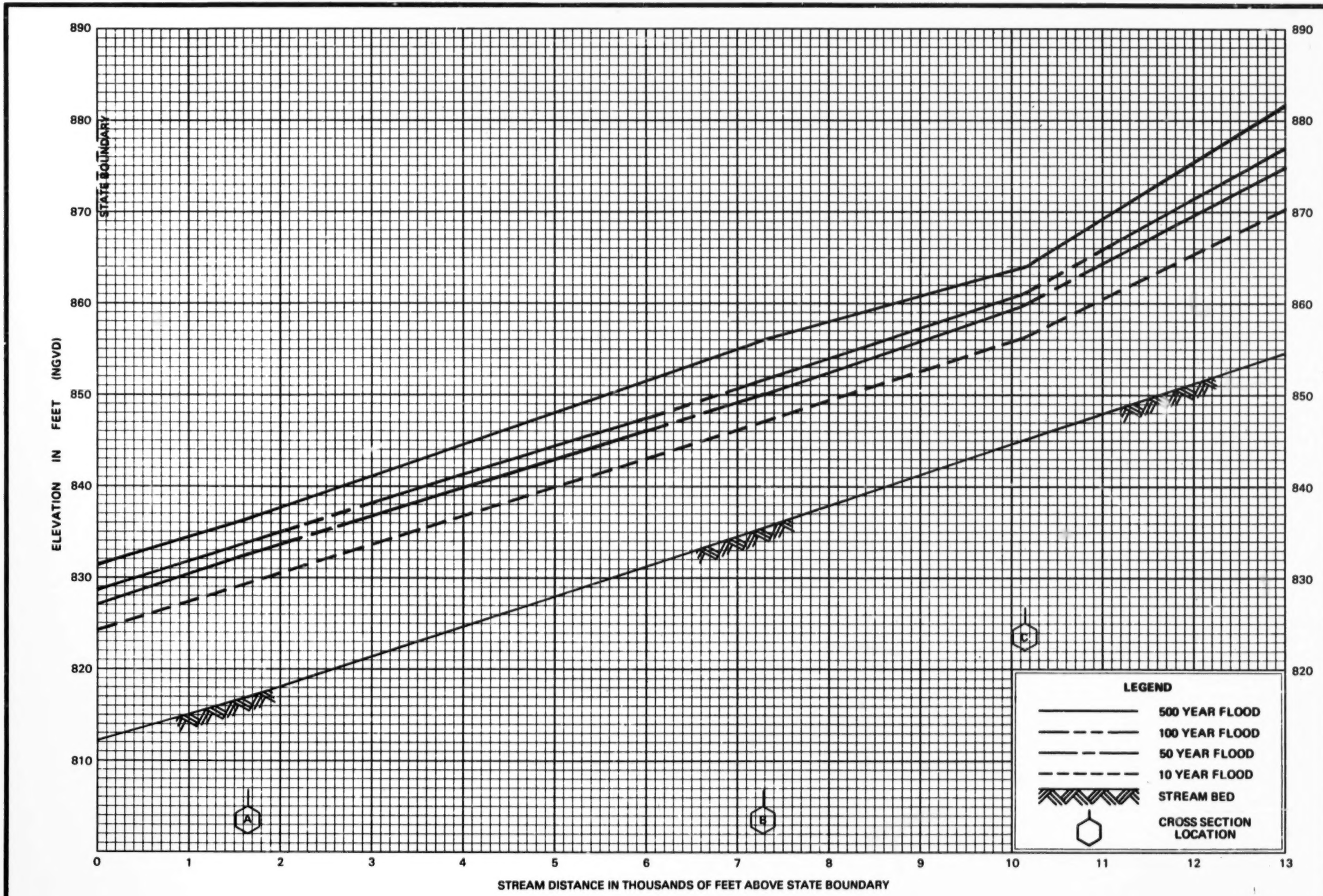
TRACE FORK BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA

(UNINCORPORATED AREAS)

42P



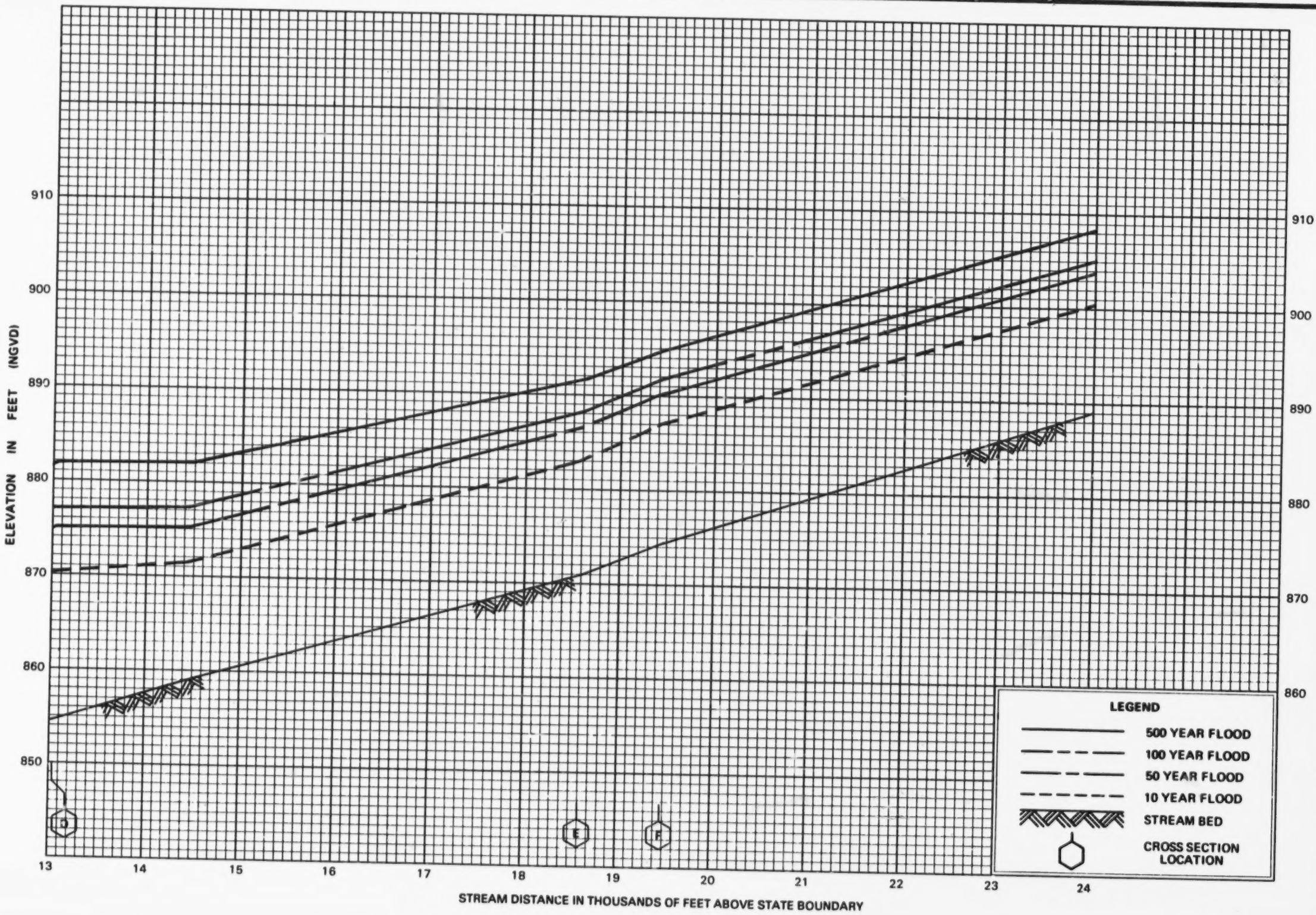
FLOOD PROFILES

TUG FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

43P



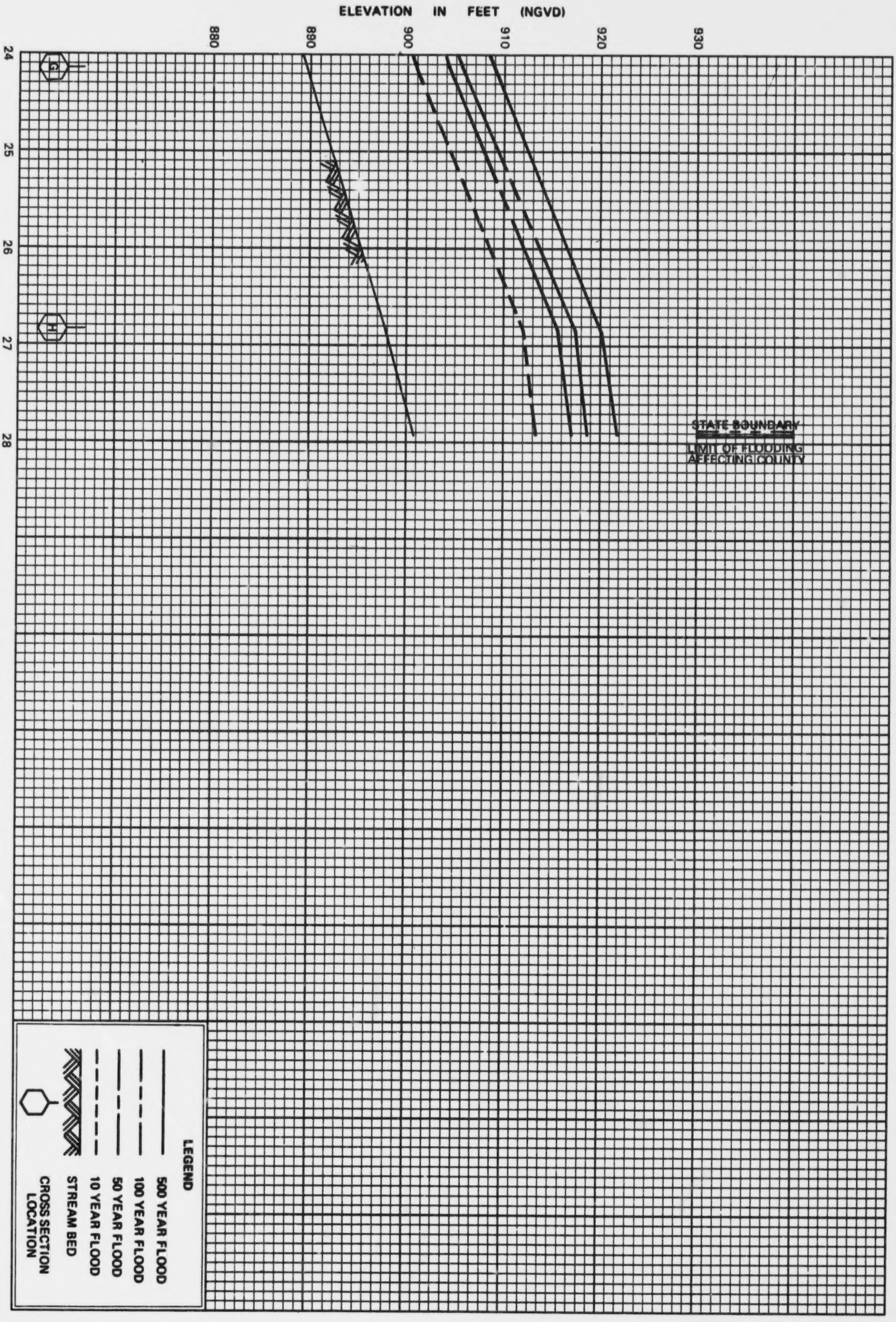
FLOOD PROFILES

TUG FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

44P



45P

FEDERAL EMERGENCY MANAGEMENT AGENCY

BUCHANAN COUNTY, VA
(UNINCORPORATED AREAS)

FLOOD PROFILES

TUG FORK